INSTITUTIONEN FÖR ALLMÄN OCH JÄMFÖRANDE ETNOGRAFI
VID UPPSALA UNIVERSITET

Occasional Papers V

EDIBLE AND OTHER INSECTS OF MID-WESTERN ZAMBIA

Studies in Ethno-Entomology II

BY

Carl Axel Silow

Uppsala 1976

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PREFACE

The object of this investigation has been to describe how the villager experiences the insects in his surroundings and what attitudes he takes towards them; i.e. to determine and analyze his systems of classification of insects—on the one hand to determine the principles of classification and to compare them with the entomological system, on the other to decide which units that are distinguished and how they are grouped;

to determine his knowledge of the biology of the insects, their distribution and niche functions, their morphology, anatomy, physiology, metamorphosis, habits, food, enemies;

to record opinions about noxiousness, usefulness, non-relevance of the insects for people;

to determine religious and other ideas about insects;

to study how people on the basis of this knowledge and these ideas behave concretely towards insects—e.g. try to control them, use them in medicine, or collect them for food;

to study to what extent systems of classification, knowledge, ideas, and practical attitudes are dependent on the composition of the insect fauna in the areas of respective ethnic groups, to what extent on cultural factors;

to study changes of attitude and the influence of modern time.

My investigation is based on data, which were collected during a field work in Zambia April 1972–March 1973. The main part of the material was gathered in Kaoma District in Western Province (July 1972–March 1973), where I most of the time was residing at Kalundu, a village cluster near Mangango. Before I settled down in Kaoma District, I was during one month residing at Itezhitezhi (Meshi Teshi Gap) on the Kafue Bend in Namwala District, Southern Province. Before then I made some introductory excursions, e.g. a journey by bus to Isoka, Northern Province, and a couple of outings in the environments of Kafue Gorge, Southern Province.

In Kaoma and Namwala Districts I have worked with the Nkoya, who are the original inhabitants of Kaoma District, and also with the Mbunda, Lucazi, Cokwe, and other ethnic groups from Angola, who have immigrated from the 1920's up to this very day. I have also received additional data from other ethnic groups.

The area where I have made my investigation is representative with respect to

climate and vegetation for the zone of miombo forests, that extends to the south of the rain-forests, with respect to culture for most of western Zambia (except the Lozi area) and eastern Angola.

Most of my informants are peasants, who hunt, fish, and collect for their household requirements. They are all more or less influenced by the modern time with its monetary economy, its migrations into the towns, its conflicts between foreign (mainly European) and traditional values and customs, its decreasing knowledge and understanding of the nature, its diminishing supplies of many kinds of wild animals, that are used for food, etc.

It should perhaps be mentioned that I found the peasant culture at Kalundu very similar to the culture in the countryside, where I, having peasants as parents, was brought up in the south of Sweden. I want to say that the peasant cultures at Kalundu and in Sweden have more in common than the Kalundu culture and the modern culture of Zambian town population of the upper classes. This is noted only because the occidental literature about Africa often pictures the villagers as exceedingly exotic, having very strange beliefs and very strange customs.

The work is planned to be published in 4 volumes. Volume 1 (MS) contains except the general introduction to the whole work (chaps. 1–3) general data about caterpillars (see below). Volume 2 deals mainly with specific caterpillars. The caterpillars constitute the largest single and economically most important group among the insects. Volume 3 (in preparation) provides information especially about beetles, maggots, grubs, vermin, ants, and termites. Volume 4 (in preparation) will mainly treat flies, wasps, bees, grasshoppers, and will also contain a conclusion based on the whole material.

Just as Europeans in general my informants include among the insects several other kinds of tiny creatures, as e.g. ticks, snails, leeches. I have found it natural to treat some of these animals, which from an entomological point of view do not at all belong to the insect class, in my work. Altogether I have found c. 180 kinds (ethno-species, see vol. 1 chap. 1) of insects and allied creatures distinguished by my informants. C. one fourth of these—caterpillars and butterflies belonging to the order Lepidoptera, but also some other larvae and imagos of insects, which my informants consider to be related to the caterpillars—are treated in the present two volumes.

The material on caterpillars was originally intended to be printed in one volume, but I was suddenly and unexpectedly forced to cut it into two halves and to choose which part to publish as a doctoral thesis. Considering the matter I found the 2nd part to be the most homogenous one and to contain the bulk

of the field data on caterpillars. The two volumes, however, complete each other, the one being the key to full understanding of the other and vice versa. Each part isolated is incomplete. The intended simultaneous publishment of volume 1 has unfortunately been delayed, but I hope that it will soon be published.

In vol. 1, chap. 1, the methodical discussion is to be found. Chaps. 2 and 3 respectively present the area where the field work was conducted, and provide information about the economic and cultural background of the ethnic groups involved. In chap. 4 I discuss the general principles of the villagers' classification of caterpillars. Chaps. 5 and 6 present the villagers' general knowledge of caterpillar morphology and anatomy respectively of caterpillar life cycle. In chap. 7 I deal with the villagers' knowledge of general caterpillar biology. Chap. 8 deals with caterpillars used as food. Other relations to caterpillars are considered in chap. 9. In chap. 10 I have grouped together from the literature data on caterpillar-eating in Bantu-speaking Africa. For further information the contents of vol. 1 are annexed.

In the present volume I treat the different kinds of caterpillars, butterflies, and allied insects, which are distinguished by my informants, one by one. I have arranged them according to the way of classification that I have found to be most prevalent among the Kalundu peasants. Thus each chapter deals with a natural systematic group as distinguished by the villagers. For comparison I have annexed to the respective sections statements from the literature, which as far as I can judge seem to have the same or related caterpillars in view.

A short summary of vols 1 and 2 is given at the end.

During my stay in Kalundu I tried to adapt myself to village custom as much as possible and not unduly interfere with everyday life, or too glaringly diverge from the milieu. I lived c. 20 m from the nearest village. My residence was a traditional village-house with a meeting-house annexed. I took up a small garden close to my home where I cultivated traditional crops, tilling the soil myself. My staple food was the villagers' e.g. porridge, cassava-roots. I had no servants but one man who was employed to fetch water and firewood once a day.

I had no regular, paid informants. I visited the small and scattered villages walking. The inquiries were mostly conducted in public. As a rule one man came to act as a spokesman for the village. The auditory regularly functioned as a good control of the version offered—added more data, protested or argued the point. The questions were presented in several villages, and often more than once in one and the same village. A statement was generally not accepted as giving a correct picture of ethnic knowledge or opinions before it was confirmed

by at least one other independent source. Special problems were created by the great diversity of ethnic groups. Only in Kalundu 7 ethnic groups speaking as many dialects or languages exist. Altogether I came into closer contact with 19 ethnic groups. Other problems were created by the continous influx of fugitives from Angola.

Confidential conversations with single individuals became often possible when the general inquisitiveness of my presence in the area slowly disappeared. Then I could more easily interview e.g. women and doctors without interference. When I walked to visit a village I used to bring with me an insect-box with pinned specimens of different orders. These were a source of amusement and interest for the villagers and a good medium of contact. Most people had something to contribute with or ask about. At home, visitors arrived to see my laboratory and my collection of live caterpillars, and often brought with them e.g. caterpillars, living scorpions secured in the cleft of a split stick. Ant-lions were a popular gift and I have certainly received a hundred from almost as many different persons.

Since many people unfortunately regarded me as a superior I had to be anxious avoid giving leading questions or give an idea of what pleased me.

In order not to disturb people too much in a few villages and to obtain independent information I spread my inquiries over a vast area (a radius of up to c. 20 kms from my residence) and many different villages. I also talked to people wherever I found them e.g. when working in the cultivations, hunting, or walking on the paths. Every villager was regarded as a source of information. As far as I could I participated or rather accompanied the villagers in their daily duties, as work in the cultivations, wood-cutting. Thus I could observe the interaction between villagers and insects in their natural environment, put questions or receive explanations directly in connection with different situations. It would have been quite unsatisfactory to base the results only on data received from presenting samples of pinned insects in boxes for villagers. One important source of error is that villagers often identify insects by their behaviour and not by colour or morphology. Thus whirligig beetles and the small minor workers of driver ants were not, or erroneously identified, when pinned, but everybody identified them when alive in their natural context and environment.

In those villages where I became a persistent and lengthy visitor and felt that I was a strain on the normal activities, I compensated my informants, otherwise not. Those villagers whom I asked to accompany me on day-long excursions in the forest e.g. to search for a certain insect were also paid, but not people who

together with me examined e.g. dogs or stores for vermin. In this context I want to stress that several informants refused to be paid. Thus one important source of error was largely eliminated.

Most inquiries have been conducted with the aid of several local self-educated interpreters (speaking English, Portuguese, or German). Thus I avoided being dependent on one regular interpreter who might have been a constant source of error. To check the interpretation I in the beginning visited the same informants with different interpreters. I often also visited the villages alone but later returned with an interpreter to solve problems I didn't master. Towards the end of my stay at Kalundu I could get along fairly well in Mbunda and Nkoya language without interpreter. The existing dictionaries and grammars were invaluable as an independent source of control.

Much time was also devoted to the necessary task of identifying ethno-species. HULSTAERT says: "Pour les terms d'histoire naturelle (animaux, végétaux) nous avons estimé qu'au stade actuel des progrès scientifiques en Afrique on ne peut plus admettre de simples mentions comme "sorte de poisson", "arbre de la forêt", etc. Les spécialiste en zoologie et en botanique, autant que les instituts scientifiques, sont actuellement á même de fournir les déterminations exactes (nous pouvons négliger les rares cas de certains groupes demandant d'abord une révision complète). (HULSTAERT 1957 p. XVIII).

I had to rear the caterpillars to be able to identify the species which cannot be done otherwise, and to collect the sexual parts of plants to identify the host-plant species of the caterpillars. The identification of specimens involved has been done by myself with the aid of comparative material from museum collections and existing systematic works.

A discussion of different methods and a detailed treatment of methodical problems is found in volume 1.

ACKNOWLEDGMENTS

Many people have assisted me in completing this work. It is with great pleasure I express my gratitude to all of them.

My respectful thanks to the University of Zambia, which I joined as a Zoology Research Affiliate. I am particularly indebted to Prof. P. Miles (Lusaka), Head of Zoology, for his supporting interest and liberal help during my time in Zambia.

I am greatly indebted to the villagers who have patiently given me information, criticism, and advice during my work. Especially Headmen Ixakauengo, Kapwepwe, Likonde, Lindambe, Lufuko, Samundengo with their relatives and associates contributed to such a degree as to entitle them to be regarded as co-authors.

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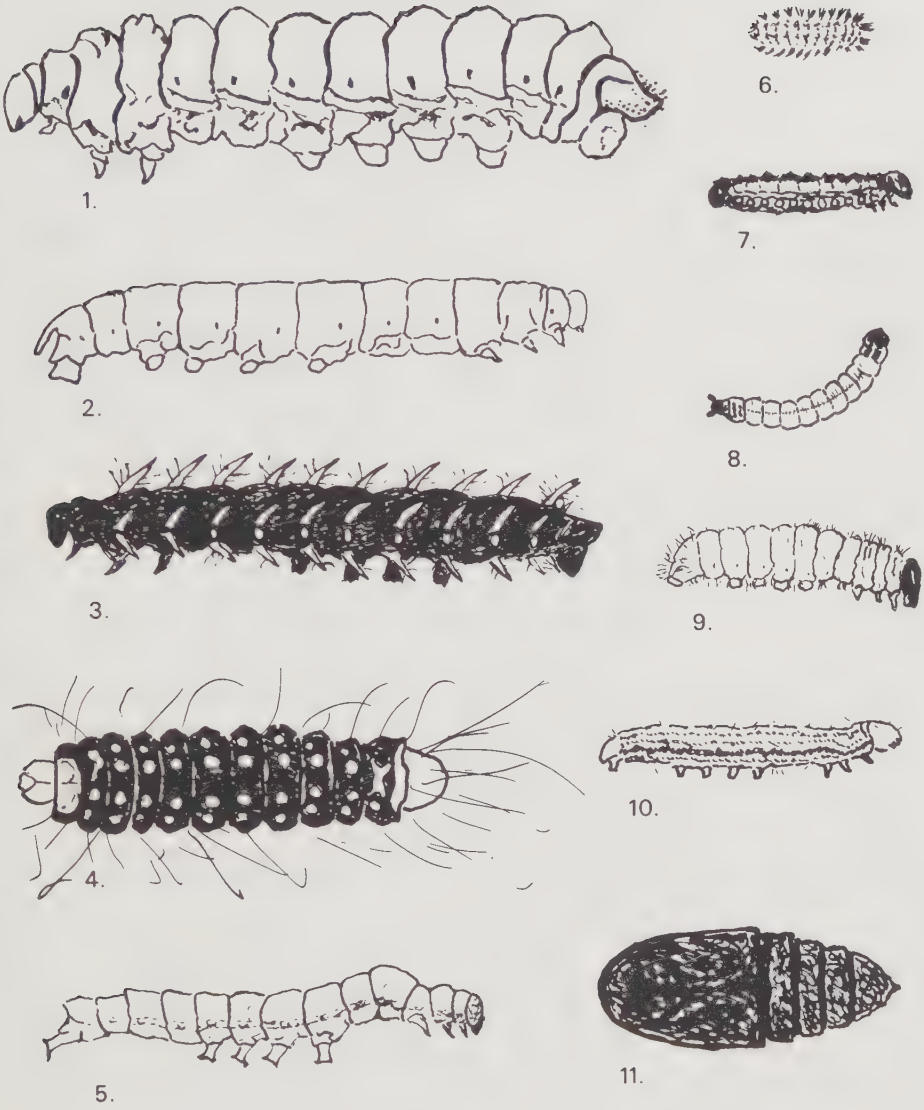

Edible caterpillars (fully grown, natural size).

1. Likese
2. Cikilakila
3. Liziavulo
4. Cuva (dorsal view)
5. Mbandama
6. Kavambe (dorsal view)
7. Cimbua
8. Lixumañangala (dorsal view)
9. Liungu luanda
10. Lixanjungu
11. Kakomba pupa

Distribution of caterpillar-eating ● and non-caterpillar-eating ◐ ethnic groups in Bantu-speaking Africa.

Cikilakila larva of Nephele comma (Sphingidae) 1
Cimbua larva of an unidentified species 126
Cingoyi larva of Micragone ansorgei (Attacidae) 104
Cuva larva of Imbrasia epimethea (Attacidae) 97
Inamuxo larvae of Psychidae, Tineidae 166
Kakomba larva of Cirina forda (Attacidae) 88
Kambandamukue earwigs (Forficulidae) (Dermaptera) 195
Kambumbu grain moth, Sitotroga cerealella (Gelechüdae) 188
Kanguengue stalk boring larvae (esp. species of Noctuidae) 146
Kauluulu larva of an unidentified species 46
Kavambe larva of a Limacodidae species 109
Kazanguzangu urticant caterpillar 141
Likaulanzinzi larva of a Bunaeopsis species (Attacidae) 73
Likese larva of Gynanisa maja (Attacidae) 22
Likundulu cutworms (type Euxoa (Agrotis)) (Noctuidae) 160
Lililo larvae of Choerocampinae (Sphingidae) 15
Limbilimbili butterflies (Lepidoptera) 176
Lindengola (Nk) larva of Holocerina agomensis (Attacidae) 108
Lingongolila larvae of Lasiocampidae (e.g. Catalebeda, Pachypasa) 352
Linzinzi larvae of Lobobunaea, Pseudobunaea (Attacidae) 34
Lipanda larva of an Imbrasia species (Attacidae) 101
Liungu caterpillar vol. 1
Liungu cimbote larva of an unidentified species 61
Liungu kandolo larva of Herse convolvuli (Sphingidae) 11
Liungu limpundukaina probably a non-existing caterpillar 87
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Liungu mulolo larva of an unidentified species (Attacidae) 76
Liungu muncikala larva of an unidentified species 86
Liungu mundemba larva of Melanocera parva? (Attacidae) 54
Liungu mutovo larva of an unidentified species 59
Liungu muzala larva of an unidentified species 125
Liungu muzilili larva of an unidentified species 85
Lixanjungu larva of an unidentified species 50
Lixaxa larva of a Bunaea species (Attacidae) 70
Lixexe larva of Cirina forda? (Attacidae) 94
Lixumañangala larva of an unidentified species 56
Liziavulo larva of Imbrasia (Nudaurelia) dione (Attacidae) 79
Lizoto larva of Cinabra hyperbius (Attacidae) 30
Mbandama larva of Sphingomorpha chlorea (Noctuidae) 38
Mucebu (N) apode, acephalous larva (non-Lepidoptera) 173
Muyaya larva of Gonimbrasia belina? (Attacidae) 64
Nienie larva of Euproctis producta (Lymantriidae) 144
Ñuviñuvi larva of an unidentified species 43

LIST OF LEPIDOPTERA SPECIES TREATED OR MENTIONED IN THE TEXT

As several ethno-species are not determined to or have no equivalents on species level the Mbunda-Entomological index should also be consulted.

Attacidae

Argema mimosae Bsd. 62
Bunaea alcinoe Stoll. 73
Bunaea caffraria Stoll. 73
Bunaeopsis aurantiaca Rothschild 76
Cinabra hyperbius (Westw.) 30
Cirina forda (Westwood) 88
Gonimbrasia belina Westwood 64, 67
Gonimbrasia zambesina (Walk.) 70
Gynanisa maja (Klug.) 22
Holocerina agomensis Karsch 108
Imbrasia epimethea Drury 97
Imbrasia ertli Rebel 102
Imbrasia obscura Butler vol. 1
Imbrasia (Nudaurelia) anthina Karsch 82
Imbrasia (Nudaurelia) cytherea (Fab.) 70
Imbrasia (Nudaurelia) dione Fabricius 79
Lobobunaea christyi Sharpe 36
Lobobunaea saturnus Westw. 36
Melanocera menippe Westw. vol. 1
Melanocera parva Rothschild 82
Micragone ansorgei Rothschild 104
Pseudantheraea discrepans Butler 87
Urota sinope Westw. vol. 1

Sphingidae

Acherontia atropos (Linnaeus) 205, 187
Herse convolvuli (Linnaeus) 11
Hippotion eson (Cramer) 16
Hippotion osiris (Dalman) 20
Nephele bipartita Butler 10
Nephele comma Hopffer 1

Lasiocampidae

Bombycomorpha pallida Dist. 131
Catalebeda jamesoni B.-Bak. 134
Gonometa postica Walk. 139
Gonometa rufobrunnea Auriv. 139
Mimopacha aff. knoblauchi Dew. 140
Pachymeta robusta Auriv. 140
Pachypasa bilinea Walk. 135

Noctuidae

Busseola fusca Hmps. 146
Heliothis obsoleta F. 146
Laphygma exempta Walk. 163
Laphygma exigua Hb. 163
Prodenia litura F. 156
Sphingomorpha chlorea Cr. 38

Notodontidae

Alenophalera variegata Aur. vol. 1
Anaphe infracta Walk. 114
Anaphe venata Butler 125
Pseudobarobata angulata Gd. vol. 1

Lymantriidae

Euproctis producta Walk. 144
Euproctis terminalis Walk. 142

Hesperiidae

Caeliades libeon Druce 63

Nymphalidae

Cymothoe caenis Dr. vol. 1

Tineidae

Crisocharacta amphiactis 171

Gelechiidae

Sitotroga cerealella Oliv. 188

Bombycidae

Bombyx mori L. vol. 1

CHAPTER 1

Edible and ominous caterpillars with tail

The cikilakila genus 1. cikilakila 2. liungu kandolo 3. lililo

These larvae are distinguished by their tails. Further they are of medium size, and have a smooth and thin skin. Three kinds are known. If noticed also unknown caterpillars with tail are sometimes classified together with them. The first two known kinds correspond to entomological species, the third one to a subfamily. The former two kinds are edible, the latter one is inedible and ominous.

Cikilakila

Cikilakila, vi (Y, M, Nk, L, C), likilakila, ma (M, Nk, L, Luv, C, N), livulia, ma (L, Luv), muuli, -(C), zole, ma (C), rimbudya, ma (N), rimburia, ma (N), riburi, ma (N) the caterpillar of Nephele comma Hopffer (Sphingidae).

Host-plant: Diplorhynchus condylocarpon.

Season: before and during early rainy season (c. Sept.–Nov.).

The identification is based upon a study of the moth. Larvae (from a length of c. 15 mm) have been reared. Pupa and imago have been obtained.

The Mbunda and Lucazi say alternatively cikilakila and likilakila, but it is usually asserted that cikilakila is a Mbunda word, likilakila a Lucazi word. Some people maintain that it is the other way about. Likilakila, however, is the term in common use among the Ngangela and Cokwe, and is even heard among the Nkoya. Both the Lucazi and the Luvale regard the term livulia as a correct synonym of likilakila. As the true Cokwe word either muuli or zole is given, or sometimes both. Some Cokwe persons maintain that zole, lizole is a Mbunda term, but the Mbunda deny the existence of such a word in their language. Yet the host-tree of the larva is called muzole in both Mbunda and Cokwe language. Among the Nkoya the form rimbudya is commonly heard as well as rimburia and riburi. The latter term is sometimes said to be of Mashasha origin.

Cikilakila, likilakila (Ng), sp. of edible caterpillar; livuli (Niemba), sp. of edible caterpillar (Pearson); likilakila (Ng), larva, caterpillar (Baião); makilakila (Luv), sp. of edible caterpillar (C. M. N. White 1959, p. 13); zole (C), an edible caterpillar (Mac Jannet); manzole (C), eaten larva (Dos Santos 1960, p. 133).

It is a well-known fact among my informants that the terms cikilakila and

likilakila are formed from the word for stump of tail, cikila, likila, or from the word for tail, mukila, the tail being the most conspicuous feature of the caterpillar. Livulia, muuli, zole, rimbudya, rimburia, riburi derive from muvulia (L, Luv), muuli (C), muzole (C), mumbudya, mumburi, muburi (N), Diplorhynchus condylocarpon, the host-tree.

One kind of cikilakila is known to exist. People have noticed that there are numerous different varieties when it comes to colour and pattern. My informants are usually able to describe 3 or 4 types. In general they mention one leaf-coloured variety, which is alternatively described as white or whitish, one black, and one coloured like a puff adder. More occasionally red, reddish, blackish, speckled, spotted ones are mentioned. People agree unanimously that all these varieties belong to the same kind. The common answer to the question how they can be so sure of that is, that these caterpillars differ just like children in the same circle of brothers and sisters, or like the chickens of a hen. Further, it is said, there are no other differences between the larvae in regard to for example behaviour and host-tree.

Liungu kandolo is pointed out as cikilakila's closest relative, because, people say, both possess tail. Some persons also add lililo, and explain that it differs from cikilakila only by its eyes. Others find it disagreeable to think of lililo as a relative of cikilakila, and argue that such a terrible caterpillar as lililo can have nothing in common with a useful and delicious larva as cikilakila.

The grown-up cikilakila is described as being of forefinger size with a naked skin. It is provided with a small stump of tail. On each side of the back there is a white stripe.

Cikilakila does not undergo moulting, because it has a stretchable skin, which permits unlimited eating and growth all through the life, my informants say. The young caterpillars are considered to differ from the adult ones only by size.

The pupa is said to be found in the ground at a depth of about a finger-joint. It is described as big and reddish in colour. Several villagers have noticed the presence of black spots along the sides, and everybody can report that it has a tail just like the caterpillar. The former observance concerns the spiracles set in black, the latter the cremaster (a spine at the anal end of the pupa).

Larva of earlier instars (from 15 mm): similar to final instar. Larva, final instar: c. 75 mm long, c. 12 mm broad, weight c. 5 g. Head with longitudinal light stripes. First somites of body tapering. Body pattern and colour show much variation. Dorsum darker than lateral area. Horn stout c. 4 mm long, slightly down-curved, with a trunkated point. Another conspicuous character is a c. 1 mm broad subdorsal stripe from head to horn. Spiracles black.

A few main varieties may be distinguished, but many intermediate forms occur. They can be divided into green and non-green varieties.

The observation made by some of my informants that cikilakila-larvae when swarming are mostly black may be true. Special swarm phase colours are known for e.g. locusts. I examined specimens from an outbreak, and they were almost all of the black variety (see below). In the small groups I observed the most common type was the green. Here almost all larvae in the earliest instars were green, but their numbers seemed to diminish with each successive moulting, so that the other varieties together dominated in the penultimate and final instars. None of the studied specimens changed colour more than once. None of them changed from a non-green colour to a green. The idea that cikilakila-larvae change colour was unfamiliar to my informants.

Varieties:

Green variety with light green body and white subdorsal stripe. Turns brownish before pupation.

Non-green varieties often with a distinct rhombic or angular dark pattern on each somite. Lateral area sometimes with a similar but usually more ill-defined pattern, often reduced to a wavy stripe running through spiracles. Dark varieties with numerous light spots. Light varieties with numerous dark spots. Body colour in different shades of grey, red-brown, grey-brown and black.

Varieties with rhombic or angular pattern with white, light reddish or brown subdorsal stripe.

Black variety with a yellow subdorsal stripe.

Pupa light brown, c. 35 mm long and c. 12 mm broad. Weight c. 2 g. Spiracles set in black. Cremaster c. 1 mm long. It is found just below the surface surrounded by a slight cocoon of web, vegetable matter and soil particles.

Everybody recognized displayed specimens of cikilakila 20 mm long or more, on account of the tail. Those of a reddish-brown colour with a more or less distinct pattern of rhomboid markings were pointed out as puff adder-like larvae. Larvae with a rhomboid black pattern and brown colour were said to be black. Nobody connected these latter ones with the night adder (Causus). Exhibited pupae of cikilakila were generally identified.

A common idea is that a butterfly hatches out of the cikilakila pupa. Some persons describe the cikilakila butterfly as having similar appearance as the larva. It is rather big, and different individuals are provided with different patterns and colours. Some of my informants point to big rhopalocerous butterflies of the family Papilionidae (swallowtails, type Papilio) as being cikilakila-butterflies. Both caterpillar and butterfly possess a tail, they say, and refer to the long projection on each hind wing of the latter. These butterflies are common and conspicuous.

On the 10th of October I noticed about ten hawk moths swarming around some flowering shrubs at dusk. As time went on they became more and more abundant, especially in moon-lit nights, when they appeared in humming swarms, feeding on the flowers. In the second part of December they became less common again. A few specimens were collected and identified as Nephele comma.

No informant connected these moths with cikilakila. A woman maintained that the imago of mbandama was the cikilakila butterfly (see mbandama). Generally the imago of cikilakila (N. comma) is designed nkandikulioca, which term refers to several types of insects flying into the fire during the night, among others to moths (see chap. 14).

Cikilakila is reported to inhabit open habitats such as edges of forests and abandoned cultivations, where the host-tree Diplorhynchus condylocarpon grows. Some people say that cikilakila during its wanderings between the host-trees, or when food is scarce, also consumes the leaves of mutozi (M), an unidentified shrub, and of a kind of Landolphia shrub. These shrubs often grow together in thickets covering extensive areas e.g. between scattered D. condylocarpon trees.

The caterpillar appears, people agree, one time each year before the first onset of the rains, when the leaves of the host-tree burst (about the end of August), and disappears some time during the early rainy season.

Cikilakila is known to be very common and distributed throughout the territories of the Kangali, Yauma, Mbunda, Lucazi, Luvale, Cokwe, Avisenga in Angola, as well as throughout the territories of the Ndembu, Lunda (Shinde), Lukolwe, Nkoya, and Mashasha in Zambia. It also occurs at Kalundu.

The pattern of frequency is described as follows: The number of caterpillars fluctuates much from year to year, but the larva never disappears completely. An average year cikilakila is present in small families, with around 10 or 20 individuals in each, sparsely scattered among the host-trees. In certain localities there may be several families in the same grove. In most of the trees, however, no larvae or just a few are found.

Some years cikilakila becomes abundant, and then small families of at least 5 members are found in almost every host-tree, big families of 100 larvae or more are found here and there, while medium families of about 50 members are frequent. In certain locals, where the host-tree grows in profusion, they swarm over the trees, and strip them of all the leaves. These outbreaks usually occur only over smaller areas of perhaps 2 000–3 000 m².

There are also years when the cikilakila-larvae are rare. As a rule such a year

succeeds a rich year. Also when the season is very cold, only few will be found. In a poor year only solitary individuals or small families are discovered.

People disagree much about which years that have been years of outbreaks. Obviously their observations derive from different regions. Everybody says, however, that the outbreaks of cikilakila come in cycles. 1959, 1962 or 1963, 1965 are mentioned as years when the larva has been found in masses. 1968 is mentioned as a poor year. The other years, including 1972, have been rather normal, it is said.

It is commonly known that the members of a cikilakila family living in the same tree are of various size, colours and patterns. The variance in size is mostly attributed to differences in age and sex. Any attempts to correlate age or sex with colour and pattern did not occur. The big ones are said to be the parents of the small ones. The Ngangela and Cokwe believe that the female larvae are bigger than the males. The Nkoya believe the other way around. The biggest larva of the group is pointed out as being the headman, at least when there is only one especially big individual. The family moves, it is said, all together from tree to tree, but now and then one or two caterpillars remain in a tree, because they like the taste of its leaves, while the others are tired of it and move on, or that single individuals undertake wanderings on their own. If a larva is found alone, it may also be that enemies have taken its family.

In describing the life of the cikilakila larvae the villagers stress their capriciousness and complain of their erratic and tricky way of living. The source of this rumour is the great mobility of the kind. People report how the caterpillars one day feed on one tree close to the village. The next day they have moved to another tree growing in a neighbouring village. The next day again they are far away. They behave in this way, my informants explain, because they are very particular about their food. People describe how a cikilakila walks about on the branch, smells at the different leaves, takes a bit of taste here, nibbles there to ascertain whether the leaf is sweet enough to eat. If it is not, it tries with the next leaf. If all the leaves of the branch are sour, it investigates another one, until it finds some good food. But very soon it becomes tired of the tree, and so it descends to the ground and climbs trees of all kinds in order to find out whether their leaves are better than the leaves of its host-tree. But after tasting a mouthful or just smelling at them, it realizes that they stink.

At Kalundu I observed the first c. 30 mm long specimens on the 18th of September, the first c. 50 mm long specimens Sept. 22, the first fully grown ones Sept. 29. Great variations in size are common in one and the same tree. I found individuals varying from a length of 20 mm to a length of 70 mm together.

During the first half of October larvae of all sizes were common. From the second part of October the small ones became rare and disappeared, then subsequently the other sizes vanished, until only a couple of fully grown specimens remained.

I noted the first pupation Oct. 2, the last one Oct. 26. The pupal stage lasts between 2 and 3 weeks. From the first day of November I again found small larvae c. 20 mm long, and a similar pattern of frequency as the one just described was repeated. Specimens that were fully grown or nearly so were abundant from the second part of November, whereas small sizes disappeared. I noted the last adult specimen Nov. 28.

Thus it seems as if the larva of Nephele comma occurs in two generations. The reason for the fact that people have not observed this is probably that there is such a small interval between the last findings of larvae of the first generation and the first findings of caterpillars of edible size belonging to the second one. Yet another contributing factor may be that local conditions vary due to local climatic conditions. C. 20 kilometres from Kalundu I observed fully grown specimens Nov. 6. The time when the host-trees burst into leaf varies from place to place and with the age of the tree. The presence of a third generation is conceivable, but all agree that no cikilakila larvae are found after the disappearance of likese, i.e. after the end of November. It is not very likely that a later generation would remain unnoticed, as cikilakila is one of the most common and popular caterpillars.

Most Kangali, Yauma, Mbunda, Nkangala, Lucazi, Luvale, Cokwe, Nkoya, Lukolwe, Mashasha, Lunda (Shinde), Ayisenga, and Ndembu eat cikilakila.

A length of about 35 mm and a weight of c. 1.5 g is the estimated minimum edible size. If the season is rich the limit is set perhaps at a length of 55 mm and a weight of c. 3 g. Otherwise one does not want to take the risk of having to go without larvae one has once discovered, and so, bearing in mind the untrustworthiness of cikilakila, one gathers the smaller larvae of a family together with the bigger ones. The adult caterpillar is also collected in the ground.

The pupa is eaten by the Mbunda, Nkangala, Lucazi, Luvale and Cokwe. The Nkoya and Mashasha regard it as inedible.

Cikilakila is highly appreciated as food and rated as the second best of all liungu larvae. Only cimbua is more popular. Cikilakila is praised for its soft, easily masticated skin and for its great amount of exquisite body-fat, lyrically compared with honey or the smell of flowers. It is said that when one has eaten one cikilakila, it is hardly possible to check oneself, before all the caterpillars in the pot are finished. The pupa is rated as high as the larva.

Men, women, and children, all search for cikilakila. Men concentrate upon finding larger groups of caterpillars and make expeditions to suitable locals beyond reach for women and children. Women keep their eyes open for both small and large groups. The caterpillar for which children search most is cikilakila. There are several reasons for this: it is big and very nice, only one larva is considered to be worth the trouble of seeking, it is common, and, above all, it is comparatively easy to find and collect.

Already when the first leaves of the host-tree become visible, people are on the outlook for cikilakila. The leafing proceeds slowly and unregularly. First the small trees stand quite green, then the branches of the big trees burst into leaf one after the other. As cikilakila is the first larva that appears after a long interval, people are very impatient. Rumours of findings circulate. Pessimists say, that the season has already passed and that there will be no feasts this year. When the larvae have at last appeared people look for them as soon as they are near to their host-trees.

In order to localize cikilakila people as a rule search for droppings. Only if the ground is scrubby, they look directly for gnawed leaves. When a person finds trails of larvae, he or she starts to examine the tree-trunk, in order to prevent possible runaways from escaping. Then the branches are scrutinized. Green cikilakila larvae are said to be as difficult as likese larvae to distinguish. The other types are rather easy to see against the foliage. When one has gathered the larvae one discovers, one should keep quiet for a while, so that the remaining ones will believe that the danger is gone and begin to move again. If one does still not catch sight of any more caterpillars, one should shake the tree. The larvae, being now less afraid and clinging less firmly to the twigs, will fall down, and may be collected. The reason for not doing like this at once is that if many larvae fall down at the same time, some will run away among the vegetation and disappear. At the end of September I heard of some persons who had already eaten cikilakila. Between Oct. 3 and Oct. 22 it was said that everybody had eaten it at least once but as a rule several times. Then the findings became more scarce. All these catchings consisted of 1–25 caterpillars. At the end of October only solitary findings occurred and many persons were sure that the season was over. At the same time the report circulated that there were heavy outbreaks along the Dongwe, the Nyango, and the Mukunkiki, and down the Luena. I was able to establish the untrustworthiness of the majority of these rumours by visiting the places in question.

From Nov. 6 I heard again of people eating cikilakila. During this second season of collecting the families were reported to be larger and the caterpillars

more abundant. Usually at least one man or two women in each village went off to more distant places e.g. along the Namalati and the Nyango and returned with 0.5–1 l cikilakila-larvae. No really large families were reported from Kalundu itself, but otherwise, my informants emphasized, large groups are as common at Kalundu as elsewhere. In the middle of November solitary or small groups of cikilakila larvae were eaten daily by most people. Proper meals with the larvae occurred 1–5 times in the villages.

On the 6th of November I was guided to a place, situated c. 20 kilometres down the Luena, where there was an outbreak in a stand of D. condylocarpon at a forest skirt. The area was c. 50×200 m. A hunter had made the discovery the day before, and he had told the inhabitants of his home village which was close to Mangango, c. 10 kilom. from the finding place. They passed the news on to others. A crowd of women and children and a few men went there. When I arrived the next day at about 11 o'clock about 30 women and children were collecting. A 100 or more trees were cut down. The ground was here and there covered by an inch-deep layer of droppings. Caterpillars were creeping on the ground, but most were feeding. They were picked, squeezed, and put into gourds, plastic bags etc. Average content of a vessel was perhaps 2 l.

I often saw children looking for cikilakila. They used similar technics as the adult, but with less patience. Sometimes they tried to strain the leaves and small branchlets between their fingers in order to find the caterpillars. Some children climbed the trees voluntarily and reached for larvae, but as a rule children, too, devoted themselves to searching on the ground and on the lower branches. They also liked to rout out the desirable non-feeding specimens from the soil by scratching. Generally children do not find any greater amounts of cikilakila larvae. A normal result of half an hour's searching is two or three caterpillars. The child will often rest content with these, roast them and eat them at once. Most children at Kalundu look for cikilakila nearly every day of the season. School-children often take a pause on their way from school to try to find some. But the children at central Mangango do not have this habit of searching for cikilakila any more, as there are few if any D. condylocarpon trees in their immediate surroundings.

The average quantity per year of collected, prepared larvae eaten fresh is estimated at c. 3 l per household. Cikilakila is eaten many times and days a year, and is counted as the third caterpillar in importance during the early season, inferior only to likese and kakomba. At Kalundu only likese is more frequent.

Cikilakila is considered to be difficult to squeeze, because of its soft body. If too hard pressure is applied most of the delicious body-fat will vanish and

nothing but the skin remains. A caterpillar of 55 mm weighs alive 3 g, well prepared 1.5 g, badly prepared 0.5 g. Men often remember how skilful their mothers were at preparing cikilakila larvae, some of my informants say.

Cooking, too, is rather difficult. The caterpillars easily get burnt, due to their soft and thin skin. If they, on the other and, are boiled in too much water, the skin will be loose and leathery, and the contents will be watery. But well cooked the skin will be crusty and very nice.

If the caterpillars are few, they are mostly roasted and eaten as a snack. Larvae ready to pupate are as a rule roasted. When used as the relish of a proper meal, the cikilakila larvae are in general boiled.

A medium-sized gourd (c. 2 l) of preserved cikilakila larvae per household is normal in a rich year. But people prefer to eat cikilakila fresh, since it is, according to the general opinion, relatively tasteless as preserved.

People know that marketing of cikilakila occurs, but not regularly. It has, however, according to my informants never been sold in the market at Mangango. In Kaoma market as well as in the markets of the bigger towns one can sometimes buy it. At times a skilled collector may gather as much as half a sack (c. 50 l) and travel to the town to sell the larvae.

In the sources some statements concerning caterpillars may be brought into connection with the larva of Nephele comma.

Likilakila (Luvale) is available on muulya, Diplorhynchus mossambicensis (=condylocarpon, F. White, p. 348), Sept.–Nov. (C. M. N. White 1959, p. 13). Doke (1931, p. 101) reports that very few Lamba persons eat mwenje on the umwenje tree. F. White (p. 443) states that the Kaonde, Lozi, and Bemba name D. condylocarpon mwenge. Umwenje and mwenge are probably synonyms. The Hemba call a caterpillar makila kumwenge (Colle, vol. I, p. 29). Makila derives very likely from the common stem -kila, which in many Bantu languages denotes tail. Ku means on. Mwenge seems to refer to D. condylocarpon. Makila kumwenge should thus be the larva of Nephele comma.

The Tumbuka, Nyanja, and Nsenga word for D. condylocarpon is mtowa (Palgrave, p. 21). Ranger (p. 286) translates Nsenga ntowa with caterpillar. Willis (p. 49) mentions a Fipa clan simtowe, which word is rendered by caterpillar. These terms may refer to the larva of N. comma. Whether the members of the Fipa clan are also prohibited to eat the caterpillars is not clear.

There are further some reports, which obviously refer to Sphingidae larvae and perhaps rather to N. comma than to any other species, N. comma being extremely common throughout the Ethiopian region (Carcasson p. 103). Other Nephele species are, however, also common (ibid., p. 101 ff.).

In Kwango the Pende and the Cokwe eat manzinga larvae, which belong to the family Sphingidae. According to Leleup & Daems the Pende and Cokwe confuse at least two kinds of caterpillars named manzinga, belonging to at least two species of butterfly, without doubt of two different genera. Each species is probably monophagous, one living on the museba plant, the other on the dundu plant. The two plants grow often, the authors say, together in the steppes. They are described as perennial, suffruticose, low-growing. Dundu exudes latex and is furnished with very long rhizomes, producing "caoutchouc du Kwango". This is not true of museba. (Leleup & Daems, table facing, p. 6.) Adriaens (p. 498) says that in Kwango occurs "caoutchouc des herbes", Landolphia. The manzinga larvae are described as being of middle size, as having subterranean pupae, and as being rather common. They are collected three times a year (Leleup & Daems, table facing, p. 6).

According to the Ngangela and the Cokwe cikilakila may also feed on Landolphia (see above). Nephele comma probably occurs in Kwango. Another Nephele species, too, is known to feed on Landolphia, N. bipartita Butler (Carcasson, p. 105). From Suthu territory Endemann (p. 197) says that the Suthu name a green, red, black, or pale, large, edible caterpillar with spine on tail kurukuta. Brown (p. 180) mentions that the Tswana with the term manakalonwe refer to a large edible caterpillar with a big erection on its tail, similar to a horn. From Shona territory Hannan (p. 581) states that siriri, tsungahuru (Karanga), shinini (Zezuru) are designations for an edible caterpillar, Sphingid. As a synonym of shinini, sinini is given (ibid., p. 580).

Biehler (p. 64) says that the Zezuru eat sinini, a white caterpillar, and sininigombagomba, which is found on a bush and is described as having a white stripe on back. Such a stripe is e.g. characteristic of the larva of N. comma. Also Hannan (p. 580) gives the term sininigombagomba, edible caterpillar. Whether Sphingidae caterpillars are eaten by all caterpillar-eating ethnic groups all over the Bantu-speaking Africa is open to question. Serpa Pinto reports that the Ngangela like hawk moth caterpillars, but that his followers did not touch them (Serpa Pinto, vol. I, p. 155). Serpa Pinto's followers were Southern Mbundu, who traditionally regard caterpillars as edible. It is hardly possible that their rejection of the larvae was due to European influence. (Many Europeans believe that Sphingidae larvae can deliver a poisonous sting.) It is reasonable to assume that they are not eaten traditionally. It does not seem improbable that some peoples should see a connection between lililo larvae (see below) and other kinds of hawk moth larvae.

Liungu kandolo

Liungu kandolo, mongu kandolo (M), liñoñoño, ma (M), lindolo, ma (Nk, L, Luv), lintambikila, ma (L), ciliantamba, yi (C), rirambwa, ma (N), rindoro, ma (N) rifwantamba, ma (N) the caterpillar of Herse convolvuli (Linnaeus) (Sphingidae)

Host-plants: bindweeds (Convolvulaceae), sweet potato (Ipomoea batatas)

Season: late rainy season (c. Dec.–Feb.)

The identification is based upon a study of the moth. Larvae (from a length of c. 40 mm) have been reared. Pupa and imago have been obtained.

Most people know of a liungu larva feeding on the leaves of sweet potato. However, many say they have forgotten its proper name, others are not quite sure, or name it only hesitatingly. My informants often disagreed about whether the received terms were correct or not. They also often questioned the synonymity of the terms. A few old Mbunda and some Nkoya persons maintain that the names liñoñoño respectively rirambwa are the only correct ones. Both words are based on names of bindweed, while the others are based on names of the sweet potato plant. The former is the original host-plant of the larva, while the latter is of foreign origin. To what extent the terms above are mere descriptions is doubtful.

Bindweed is called muñoñoño, murambwa, hence liñoñoño, rirambwa. Liungu kandolo, lindolo, rindoro derive from kandolo, kandoro, sweet potato plant. Lintambikila is a compound derived from ntamba, sweet potato plant, and -kila, tail. Ciliantamba is a compound of lia, eat, and ntamba, sweet potato plant. Rifwantamba is a compound of fwa, die, and ntamba.

One kind of liungu kandolo is known. Some persons, however, believe that the caterpillar living on the sweet potato plant and the one living on bindweed are of different kinds. Yet, those who are familiar with liungu kandolo emphasize that it consumes both kinds of herb.

Some claim the existence of as many different varieties of liungu kandolo as of cikilakila. Contrary to this others maintain that there is only one variety. The former opinion is markedly often to be found among the Mbunda and other immigrants, while the latter is prevailing among the Nkoya. The latter seems to be more correct; the former is probably due to confusion with cikilakila.

Throughout the accounts of liungu kandolo it was evident that more Nkoya than Mbunda and other immigrants were familiar with this larva. Thus the Nkoya e.g. more seldom confuse or compare liungu kandolo with cikilakila. Persons who confuse the two caterpillars say that it is impossible to see any difference in appearance between them, and that the only way of distinguishing them is to notice their respective habitats. Others, who know better, can tell me

that there are spots along the flank of liungu kandolo, sometimes also that liungu kandolo does not have any light stripe along the side as cikilakila has.

The Nkoya and Mbunda agree that liungu kandolo's closest relative is cikilakila, as both have a tail. Sometimes also lililo is mentioned. Liungu kandolo is described as being of forefinger-size, with a tail behind. The pattern is striped, the colour is alternatively said to be white, whitish, or as the colour of leaves. On the flank there is a row of spots. People say that this caterpillar has the same look all through its life, and that it grows without moulting. The pupa is described like that of cikilakila, but most people admit that they have never seen it.

Larva, penultimate instar: similar to final.

Larva, final instar: c. 80 mm long, c. 10 mm broad. Weight c. 6 g. Head and body green. Dorsum with more or less distinct black stripes. Lateral area with oblique black stripes on somites 4–10. Horn down-curved, ending in sharp point, orange, black-tipped. Spiracles blackish, set in white/red spots.

Liungu kandolo larvae were when displayed often identified as cikilakila larvae. Persons who had described them correctly also made this mistake. Once a liungu kandolo was said to be a lililo. Young persons failed especially often to recognize them. Only a few of my informants could immediately say that they were liungu kandolo caterpillars.

The pupa with its characteristic free proboscis sheath was not identified.

Liungu kandolo is a caterpillar of open habitats—edges of forests, treeless places, dambos, river banks, seepage areas, sweet potato cultivations are mentioned. The most well-known host-plants are the various varieties of sweet potato. A number of persons have observed that it also feeds on other herbs, often vaguely described as flowers, grass. Others can say that it consumes a kind of herb covering the ground, with leaves similar to those of the sweet potato. Old people can directly point out and name bindweed (Convolvulaceae).

Most of my informants report that liungu kandolo appears in the late rainy season and disappears before the rains end. Some say that it also or only occurs at the same time as cikilakila.

This larva is distributed in the territories of the Ngangela and Cokwe in Angola and of the Nkoya in Zambia. It occurs in the Kalundu region.

As a rule the Mbunda and other immigrants say that liungu kandolo is not observed every year, and that mostly only solitary individuals are seen. Sometimes, however, they say, as many as ten can be seen together. The Nkoya report that they see it every year, single or in small groups, and that some years the liungu kandolo larvae are abundant and can be found as many as 50 ones together. These years, the Nkoya state, many larvae may be discovered in the

same sweet potato cultivation. They may even be so many that they eat all the leaves, leaving nothing but the stalks. The Mbunda have never heard of such attacks.

People can say about the life of liungu kandolo that it is always moving around, eating one leaf here, one there, sometimes setting off for distant places. It often happens that when one is leaving a host-plant, another is coming. They just feed and creep until they die (disappear, pupate).

I found solitary specimens on sweet potato or bindweed. The first specimen (of penultimate instar) Dec. 27, the last Feb. 19. A pupal period of between 2 and 3 weeks was recorded. Probably more than one generation exists.

By tradition the Yauma, Mbunda, Nkangala, Lucazi, Luvale, Cokwe, Ayisenga, Lukolwe, Nkoya, Mashasha, eat liungu kandolo. Nowadays, people say, it is only rarely collected and eaten. Only a few of my informants, mostly old persons, say that they still eat it if they find it. Middle-aged people often do not know if it exists nowadays or not, and say that it formerly was generally eaten.

As the smallest edible size a length of around 50 mm was indicated. The pupa is regarded as edible, but it is said that it is rarely or never found, except perhaps when sweet potato tubers are dug out. Nobody eats it, because it is so difficult to find. One can not know where it is burrowed, people say.

Liungu kandolo is considered to be as delicious as cikilakila to eat, but since it occurs only in so small numbers, it is less appreciated. As a rule people do not find it worth while to search especially for liungu kandolo. The larva reveals its presence in the sweet potato garden by the droppings and by the damage on the leaves. Even then the caterpillar is not easy to detect. It looks just like leaves itself and can be anywhere among the herbs which grow like a thick carpet. But it is restless, and often one will be able to catch sight of it, when it moves, perhaps when it hurries away across the tilled soil of the field from one sweet potato patch to another. Old people say that formerly leaves of Convolvulaceae were much used for stewing, and that a person collecting them would sometimes be lucky and find liungu kandolo-larvae feeding on the herbs.

The old Nkoya estimate that they used to gather as much as 5–10 fistfuls of liungu kandolo per year and person, several findings of solitary larvae excluded. The Mbunda and other immigrants are of the opinion that this estimate is far too high, and that the average catch per year was perhaps one fistful or less. Only some years one could get more. During outbreak years one could, according to the Nkoya, gather as much as a small gourd (c. 1 l) of squeezed caterpillars.

Liungu kandolo is prepared and cooked like cikilakila. Neither preservation nor marketing is known to occur.

In spite of the fact that liungu kandolo attacks the sweet potato cultivation and devours the leaves, it is not considered to be noxious. New leaves will soon develop, people say and emphasize that it is a good thing that the larva eats such well-tasting food, thereby becoming a dainty morsel itself. Stewed leaves of sweet potato and of bindweed are regarded as very nice food, even if the latter are not eaten today. But the larvae are even much nicer.

From South Africa Smit (p. 205) reports that the larva of H. convolvuli is a pest of sweet potato, and recommends use of an insecticide.

The difference between the Nkoya and the Mbunda when it comes to estimating occurrence and catch of liungu kandolo is probably a consequence of their different agricultural traditions. The Mbunda are forest-people not much interested in dambo cultivation. They grow comparatively small amounts of sweet potato in patches in the corn-fields. The Mbunda at Kalundu, if they grow sweet potato at all, usually have patches of c. 4×4 m. The Nkoya on the other hand are traditionally dambo cultivators and show a preference for situating their main fields in less well-drained soil along the dambo edge. Originally, I am told, sweet potato was a staple crop among the Nkoya. In the dambo, on the river banks, in seepage areas, and on hoed up mounds the old Nkoya varieties of sweet potato were grown. Still some elderly Nkoya have large (perhaps 3×20 m) cultivations of these old varieties in the dambo. But most Nkoya, especially the young, have adopted a variety said to have been introduced by the Luvale and giving a higher yield. Generally this new kind is grown in patches in the corn-fields, as the Nkoya have learnt from the immigrants. Quite a number of persons also lose interest in sweet potato, displacing it by cassava.

Even if the customs are changing, however, it is obvious that the Nkoya have had better opportunities to become acquainted with and to find liungu kandolo on sweet potato. The role of bindweed in this connection is difficult to establish. At Kalundu it is not very common, and I have not received any information saying that it should be more common in the home areas of the immigrants with whom I have talked.

The decline of the sweet potato at Kalundu will probably turn liungu kandolo into a rare caterpillar.

In the literature Quin has noticed that the Pedi eat naatla, the larva of Herse convolvuli, when it is fully developed. One generation is said to occur in Jan.–Feb. The supply is not sufficient to warrant preservation, Quin reports (Quin, p. 108).

Cinsenukila is according to White Fathers (p. 200) the name in Bemba language for a green caterpillar on sweet potato and orange-tree.

Lililo

Lililo, ma (M, Nk, L, Luv, C), cikundo-ca-manyika; yi (C), rikundukufera, ma (N), hawk moth caterpillar with eye-spots; many species (Choerocampinae, Sphingidae).

Host-plant: unknown.

Season: all the year round.

I have identified one species of the subfamily by studying the moth. Caterpillars of this species have been reared. Pupa and imago have been obtained. This identification has together with descriptions of my informants made it clear that the ethno-species lililo quite well corresponds to the subfamily.

As a rule the terms are only used in the singular, because, I am told, lililo always lives alone. The Cokwe often use the Ngangela terms.

Lililo (Ng), sp. of caterpillar (non-edible) (Pearson); chikundo-cha-manyika (C), an inedible caterpillar (MacJannet).

It is known that lililo is a derivation of lila, weep, bewail. Everybody is aware of the fact that the caterpillar is named lililo, because whenever it is seen, weeping for the dead, malilo, begins. The larva is an omen of death. Cikundo-ca-manyika is a compound said to be derived from kundula, break neck, and munika, wring to pieces with fingers—when this caterpillar twists its neck, it is cut in two pieces, my informants explain. Rikundukufera is said to be a compound of kundura, break neck, twist back and forth, and kufera, break to pieces with hand—when a person sees one of these caterpillars, he or she should take it and wring it to bits. (See further below.)

In popular opinion only one kind of lililo exists. A wide variation of patterns and colours are, however, supposed to occur within the kind. The general opinion is that lililo has no close relatives. People do not willingly connect it with cikilakila, but admit that they are very similar in appearance, and that the only difference is the eyes of lililo. Some persons maintain without hesitation that both cikilakila and liungu kandolo are relatives (but only distant ones) of lililo.

Lililo is according to the descriptions as big as cikilakila (that is of forefinger-size) and furnished with a similar tail. Its most prominent characters are the two eyes, situated on the neck. These eyes are quite similar to human eyes, with eye-white and a black pupil and a staring look. In other particulars the descriptions coincide with those of cikilakila.

No informant pretends to know anything definitely about lililo's stages of development, but it is supposed that what is valid for cikilakila is valid for lililo, too.

A fully grown, non-feeding specimen of the type I have observed is c. 60 mm long, c. 10 mm broad. Weight c. 5 g. Anterior tapering of body pronounced. 4th and 5th somites characteristically enlarged. Body speckled light and dark grey.

Dorsal colour markedly darker than lateral. A subdorsal white stripe. 4th somite with a pair of opposite ocelli, consisting of black pupil (diameter c. 1 mm) surrounded by a white ring (diameter c. 1.5 mm), the whole ringed by a fine black line. 5th somite with a pair of slightly smaller ocelli, consisting of white pupil (diam. c. 1.5 mm) ringed by black (diam. c. 1.5 mm), 6th–12th somite each with two small black spots. Horn long, c. 4 mm, thin, straight, pointed. Base grey, point tipped with black.

Displayed specimens were generally identified on account of the eyes, the anterior pair of ocelli being pointed out as typical eyes with pupil and white. No interest in the posterior ocelli was shown. No one wanted to find any similarity between them and eyes. Nobody observed the peculiar shape of the body as compared with the bodies of cikilakila and liungu kandolo. Much attention was paid to the movements of the caterpillar. When it is annoyed, it withdraws the anterior somites into the enlarged ones, wagging the anterior part of the body and exhibiting the eyes. People observing this feel, according to what is said and to what I have found, uneasy, thinking that the caterpillar is staring at them. It is impossible, they say, to avoid looking back upon it. Carcasson (p. 8) says that when these larvae are alarmed they acquire a remarkable resemblance to small snakes. No informant agreed, however, with this statement. Nor did anybody pay much attention to the horn or associate it with a sting.

The caterpillars, which I have reared, belong to the species Hippotion eson (Cramer). This species is very common and found in most habitats (Carcasson, p. 121). However, also other species of Hippotion are common (ibid., p. 118 ff.), and it is very likely that at least some of them occur at Kalundu. Furthermore this genus is only one among several within the subfamily Choerocampinae, the caterpillars of which are usually decorated with large eye-spots (ibid., p. 8 f.). All these caterpillars with characteristic eye-spots are probably identified as lililo larvae. The criterion for what should be regarded as an eye may, however, be wavering according to the circumstances. Thus a liungu kandolo larva was once confused with lililo by some women, who together with me observed it crossing the path. The lateral row of black spots set in white were identified as eyes.

People know that lililo may be seen anywhere— in the forest, in the field, in the dambo, and even in the village. Some persons mention thickets of high grass, shrubs, or herbs as its special haunts. All kinds of dangers, e.g. snakes, are commonly associated with such places. Lililo's host-plant is unknown, but it is suggested that as it may be found anywhere, it surely feeds on all kinds of plants. Others believe that it feeds on the same tree as cikilakila. Some of the immigrants say that it perhaps eats the leaves of mulolo (Annona stenophylla). A

caterpillar named lilolo lives upon this plant. It is very likely the similarities between the names lililo and lilolo (or mulolo) that have given rise to this guesswork.

Lililo has no special season, people say. It is contrary to other related caterpillars to be found throughout the year.

The larva occurs in the areas of the Ngangela and Cokwe in Angola and of the Nkoya in Zambia. It is reported from Kalundu.

My informants say that lililo is everywhere very rare. Most persons have never seen it. The doctors know, however, that if one searches for lililo, one will find it sooner or later. And according to hearsay it is much too common in certain areas, even if it is rare.

Lililo always lives alone and likes to stay in thickets of vegetation, I am told. I noticed a dozen single lililo larvae between Oct. 13 1972 and Jan. 28 1973. They were either crossing a path or creeping about in the vegetation, when I saw them. A few of them were obviously not ready to pupate, and died, as I did not find any leaves that they would eat, the others pupated. Lililo is apparently common by entomological standards, but not common enough to be often observed by villagers. A couple of times when I saw a lililo and expected a confrontation between some peasant and the larva, people were either too tired or in too great a hurry, or else too concentrated upon something else to notice it. These larvae did also not feel so alarmed that they displayed the eyes; they simply crept away.

Everybody, people report, regards lililo as inedible, and the cause for this fact is its eyes.

The Ngangela and Cokwe say: lililo reveals its presence only in one connection, namely when a relative of the person, who meets it, is dead. Lililo is thus a messenger of death. If several persons come across it, the message is meant for the one who discovers it first. Suddenly, when one is weeding in the cultivation, one will catch sight of a pair of gazing, rolling eyes in the semi-darkness among the herbs. The unfortunate person knows that it is lililo and starts to lament, realizing that someone in the family is dead. He or she hurries weeping home, expecting to find the village mourning for the deceased. If this is not the case, the village will after a time receive intelligence of the death of a relative somewhere else, perhaps very far away, so that there will be many days and weeks before one gets to know about it. When one at last hears of a death within the family, one will take it for granted that it happened just at the time, when lililo was seen.

One can meet lililo anywhere. Cases are known when somebody has been

collecting cikilakila larvae, and picking up a caterpillar has found with horror that it was not a cikilakila but a lililo with staring eyes. Or when somebody has been cutting grass for the roof, gathering edible leaves, or digging up roots, and there the lililo has appeared.

Old people agree that lililo is never found by hazard but only when somebody is dead. The larva does not cause death, it just seeks out the bereaved. Among younger people an opinion, which sometimes seems to be based upon a confusion of cause and consequence, is found. Lililo is said to occasion the death, because, these persons argue, if the larva did not show itself, the relative would not be dead. Sometimes, however, it seems rather as if this opinion is deduced from the concept of lililo's role in witchcraft (see below). Those old persons who have thought of the significance of this idea, waver in their view of the causal connection between lililo and death.

Most of my informants had no idea of why lililo is connected with death. I got two explanations. According to the one the wide-open, staring eyes are similar to those of a dead person, and the wagging movements of the anterior part of its body are similar to the rolling of a recently deceased person's head, when the body is lifted. According to the other the ancestors found that when they met lililo there was always someone dead, and so they decided that there is a connection.

People are not quite sure of whether the moment of death and the meeting with lililo are simultaneous or not. But as a rule it is said that when one comes across the larva, the relative has been dead for a short time, is dying, or is about to die. One can be absolutely certain never to see this relative again. The relative may be anyone of one's kith and kin on the paternal or on the maternal side, even one's wife or one of one's children, but not oneself. Young people also include friends and acquaintances, but the old object to this. None of my informants had an idea of why lililo chooses to reveal itself to one member of the family, and not to another, or of why it does not appear in connection with every death. It is obvious that people do not regard a person, who meets the larva, as guilty of the death (see below concerning an exception).

I was told that some persons in the Kalundu region had met lililo during later years, and that there, just as one could expect, had occurred deaths simultaneously. One or two times a year people hear of such cases at Kalundu, report my informants. In 1972 it happened twice among the Mbunda. In the first case a man, who had met a lililo, returned home to find his father's brother dead. In the second case nothing happened for a long time, and people believed that the

woman, who had told about an encounter with a lililo, had made an erroneous identification. But then after about half a year they received a message, telling that her sister's child had been killed by a car in a Copper-Belt town.

The belief in lililo as a messenger of death seems to be as general among christians as among non-christians. However, a few christians said that they were sure that a lililo can never be a sign of the death of any of their fellow-believers, because christians are protected by a special christian medicine. A meeting with a lililo should thus always imply the death of a non-christian.

If a person dreams of a lililo, he or she should stay in the village the whole next day, because the dream is a warning of an imminent encounter with the larva. If the dreamer neglects the premonition, leaves the village, and comes across a lililo, he is considered to be guilty of the death. Such a behaviour is compared with witchcraft.

Some people know that lililo is used in witchcraft. A lililo is collected, killed, dried, pulverized, and mixed with certain other ingredients. Then the medicine is put in a place, where it is likely to attract attention, e.g. in the neighbourhood of a village. Someone wondering what it is will look more closely at it, and so a relative of the observer will die.

The doctors as well as people in general maintained that if somebody searches for and finds a lililo, there will be no death. One man, however, said that surely the mere fact that someone comes across the larva, implies misfortune.

None of my informants was of the opinion that it is possible to manipulate a living lililo by witchcraft and guide it to a person.

In the olden days lililo was used by the Mbunda as an ingredient in a war medicine prepared by the doctor and used both in inter-village fighting and in warfare with the Lucazi and Yauma. This medicine was, however, far too effective, when Yauma villages were raided for slaves, I am told. The Yaumà were weak compared with the Lucazi, and too many of them died.

The Ngangela and Cokwe think that a lililo encounter has the same effect for animals as for humans. If the larva reveals itself to a zebra, e.g., it implies the death of a relative of that zebra. This fact has been utilized by the Mbunda in making a medicine for hunters, where lililo is an important ingredient. The medicine is kept in a bundle at the belt, smeared on the eyelids, or rubbed into two spots on the forehead. When the hunter sees an animal he finds desirable, but which is out of reach for a shot, he should rock the head, or hold up the medicine, and make the animal look at it. If he succeeds in this, a relative of the animal will be lost, and the hunter will soon find it and kill it. The Mbunda

doctor sells the medicine in question, but old hunters can also make it themselves. Nowadays, however, there is nothing to hunt, so there is little interest in such medicines.

The Cokwe know of a corresponding medicine for fishing. The trap or the fishing spear should be held in the smoke of the burning ingredients, or else one should daub them with the mixture. The Cokwe also bait the hook with a living lililo, when angling (COMPARE, chap. 9, vol. 1).

The Nkoya and Mashasha possess another tradition, which is more closely associated with the hunting profession. When the caterpillar reveals itself to a hunter, he should cut or break it in two parts. If the stomach contains a liquid mixed with more or less digested pieces of leaves, it is a good sign, meaning that the hunter is going to kill an animal. If there is instead only a clear liquid to be found in the stomach, it is a sign of the death of one of the hunter's relatives. If he omits to cut the lililo in pieces, the relative will die, so he has no other choice but to divide it, and hope that he will be lucky, especially as omission is regarded as witchcraft. A hunter, who has met a lililo and just not cared for it, is considered to be guilty of the occurring death, and he will surely be killed by the avenging spirit of the deceased. But if he divides it as he should do, he will not be punished and not considered to be guilty. Unfortunately, people report, there is no medicine that can help a hunter to avoid meeting with lililo. Thus, the Nkoya and Mashasha fear lililo as much as the Ngangela and Cokwe do, even if the larvae which bring fortune are said to be more common than the others. However, it is a long time since a hunter met with a lililo, my informants say.

Some Nkoya are of the opinion that also any person meeting lililo may cut it and see if it is a good sign or a bad, but that his choice is free. A bad sign in such a case means the same as for a hunter. A good sign means a promise that the lucky one will satisfy his craving for meat during several days. A big animal will be killed, and he will take part in the feast. Other Nkoya people maintain that a meeting with a lililo is of no significance to an ordinary man or woman.

The Nkoya doctor also knows of a medicine containing lililo and bringing luck to the hunter. And a hunter, who has found a good specimen of the larva, can bring the two parts just as they are with him, when he goes hunting. The effect is said to be the same as of the Mbunda medicine. My Nkoya informants say that it has not occurred to the Nkoya to use lililo in witchcraft or in war medicine.

In other areas, too, Choerocampinae larvae have attracted attention. Some statements in the literature may be connected with them.

Thus STANNUS reports that the Nyanja or Yao name a caterpillar chisumbila mawele (Yao), meaning "that which jumps at the breasts". Children meeting it

cover up their nipples with their hands. According to STANNUS it is identical with the larva of Hippotion osiris (STANNUS, p. 310). This larva has eye spots (CARCASSON, p. 118). SANDERSON (p. 153) gives the same Yao term with the same translation.

The Bemba call a kind of caterpillar citula mfwa, predicting the death of a relative, especially if seen during the dry season (WHITE FATHERS, p. 237).

The Lulua name a Sphinx larva nyoka a bumvu. Bumvu means shame. (DE CLERCQ, p. 41) Nyoka means snake. GABRIEL (p. 128) gives nyoka a bundu, caterpillar of sphynx, as being a Lulua term. It is perhaps the same kind of caterpillar that the Kongo name munkituka nyoka, and that they consider to be poisonous and able to transform itself into the kimbadya snake (LAMAN 1957, p. 209).

If the worm ikirihabiri (Rwanda) enters a house, it is an omen of death (VAN DER BURGT, p. 34).

CHAPTER 2

Giant, edible, smooth-skinned caterpillars

The likese genus 1. likese 2. lizoto 3. linzinzi

These larvae are distinguished by their giant, fat, and glabrous bodies. They are all leaf-coloured. The Mbunda know of three kinds. The Nkoya know only of the two first ones. Each one of the two first kinds corresponds to one entomological species, the third corresponds to two entomological genera. All three are regarded as edible by the Mbunda. The Nkoya eat only the first one.

Likese

Likese, ma (Y, M, Nk, L, Luv, C), cimbanji, yi (C), kondo, ma (C), tondo, ma (C), rinkuwara, ma (Lunda (Shinde), Aysienga), rikongo, ma (Lukolwe, N) the caterpillar of Gynanisa maja (Klug.) (Attacidae).

Host-tree: Julbernardia paniculata.

Season: before and during early rainy season (c. Oct.–Nov.).

The identification is based upon a study of the moth. Larvae (from a length of 30 mm) have been reared. Pupa and imago have been obtained.

The Cokwe generally use the Ngangela term.

Likese (Ng), sp. of edible caterpillar (Pearson); makese (Luv), sp. of edible caterpillar (C. M. N. White 1959, p. 13); tondo (C), edible caterpillar (Mac-Jannet).

The derivation of the term likese is not known, but a few persons say that it has its origin in the term kexa (kesa), behead, and that it is named after its habit to withdraw its head into the body so that it appears headless, when it is disturbed. Cimbanji derives from mbanji, jackal. The larva is thought to be as great a deceiver as the jackal, according to the explanation of some people. Others maintain that it is named cimbanji, because it is often found in the neighbourhood of the jackal. Kondo and tondo derive from mukondo, mutondo, the host-tree of the caterpillar. The origin of the Nkoya term is said to be unknown.

There is just one kind of likese, without varieties, people say. Most of my informants mention lizoto as its closest relative. Some old men and women regard it as selfevident that linzinzi is the closest one, and say that it may be seen from their looks and habits that this is so. Otherwise people are more uncertain

about the relations between linzinzi and likese, if they remember linzinzi at all. The villagers in the Kalundu region are nowadays as a rule not really acquainted with this latter larva.

All the Ngangela know, I am told, that likese differs from lizoto by its much larger size, and by lacking the small spines of lizoto. Likese does not, as linzinzi, possess a broad white stripe along the flank and two white spots on the neck.

Likese is described as very big and fat. It is often said to be the biggest of all the liungu larvae, to be compared with a big and fat thumb. The skin is quite smooth, and the colour is reported to be white/whitish/ as the colour of leaves. A few of my informants have noticed a white or red stripe along the flank, or small white dots.

People assert commonly that likese moults in solitude once before it becomes adult, and maintain that it looks the same throughout its life. A couple of peasants say, however, that very young likese larvae have different appearance, but they can not describe them closer. Obviously likese enters the field of knowledge only in its penultimate instar.

The pupa is, according to my informants, big and black and buried at a finger's depth.

At the moment of the second moulting the larva is red and possesses yellow spines with setae (ROUGEOT, p. 180).

Larva, penultimate instar: very similar to final instar. When moulting the larva is c. 45 mm long, c. 10 mm broad, with a weight of c. 3 g.

Larva, final instar: c. 100 mm long, c. 18 mm broad. Weight c. 10 g. Head pale green. Body green; colour changes with age of foliage. Somites 1–12 under spiracles with c. 0.5 mm broad red stripe, underlined with white. Body sparsely dotted with silver. Dorsum, 4th–10th somites each with a pair of 0.5–1.0 mm long orange, dark-tipped spines. 2nd and 3rd somite with corresponding rudimentary markings. Somites 5 and 10 without the in ROUGEOT (p. 180) described silvery spines. Thoracic shield pale green with anterior border yellow. Anal flap triangular, yellow, especially outer borders with black tubercles. Spiracles yellow. Venter darker green with numerous silvery dots. Before pupation the caterpillar turns brownish.

Pupa c. 45 mm long, c. 50 mm broad, weight c. 5 g. It is buried in the ground at a depth of c. 5 cm.

Everybody recognized displayed likese larvae. As a rule people did not, when asked to describe them, notice the small spines, the red and white stripe, or the dots. Apparently likese is so well-known that people do not bother to take a closer look at it. Big pupae of likese larvae, as well as of e.g. linzinzi and kakomba

larvae, were identified as likese pupae, whereas e.g. cuva pupae were not, being too small.

Julbernardia paniculata is pointed out as the sole host-plant of likese.

Once a year after the leafing of the host-tree and before the rains likese appears, the villagers report, and then it is to be found until the rains are getting heavier, when it disappears. The likese season is generally compared with the cikilakila season. Likese appears shortly after cikilakila, people say, and the two larvae disappear at the same time.

Likese is to be found in the Julbernardia paniculata forests in the territories of the Yauma, Mbunda, Lucazi, Luvale, Cokwe, and Ayisenga in Angola, and of the Lunda and Nkoya in Zambia. The caterpillar is also known from Acacia country along the Kubango river in Kangali areas in Angola. It is an inhabitant of the Kalundu forests.

Likese's pattern of frequency is described as follows: The number fluctuates from year to year, but the larva does never disappear completely. The average season yields scattered groups of big families (of 100 or more caterpillars) on old trees in some localities, but more commonly smaller families (c. 10–50 larvae). In young (c. 2–3 m high) trees scattered small families with mostly only 1–3 but sometimes as much as half a dozen caterpillars may be found.

In a bad year only a few small families are found in the old trees, and some solitary larvae are gathered from the young trees.

Outbreak years show concentrations of big families in certain parts of the forests, where the caterpillars strip the trees of their leaves. Square kilometre large areas are pointed out to give an idea of their appetite. Elsewhere too they are more common than usual these years. Real outbreaks only occur where the host-tree grows in profusion. In the Kalundu region there were, according to what my informants remember, outbreaks in the years 1951, 1957, 1962, 1970. The year 1968 was exceptionally bad, it is said. Only some single likese larvae were found. A year succeeding an outbreak is mostly bad. So was the year 1971, and also the year 1972.

A condition for a good likese season is said to be much sun and many short, light showers before the start of the real rains. If such weather occurs during two or more consecutive years, one can look forward to an outbreak. The showers foreboding the rainy season make likese grow, people say. It is probably correct that high temperature and moisture favour large populations, and that one good year is not enough to build up an outbreak.

Likese is reputed to be voracious. It is big and fat, people explain, and has to eat day and night without giving itself any rest. It is so ravenous that it often

happens that it bites off a leaf in its eagerness to satisfy its gnawing hunger, thus making perhaps half the leaf spin down to the ground. My informants think that likese grows faster than all other caterpillars. Some persons believe that 3 days are enough for it to get adult, others maintain that one week but no more is required.

People are apt to compare likese with cikilakila, the former being sluggish, phlegmatic, and immobile with a swelling, undulating mass of fatness, the latter being nervous, agile, with a slender body, always on the move to find food. The former is regarded as a symbol of success and prosperity, the latter is said to be just like people in general. Likese has an unlimited access to good food, as its host-tree is abundant and very rich in leaves. Each larva dwells on its branchlet, and does not need to waste much fat by moving around. It is actually, the villagers think, like a rich person, the Queen, a bishop or a chief. If the food nevertheless is finished, it can just change to a neighbouring tree together with the other members of its family. The likese larvae change tree in the late afternoon or by night, my informants report. Before they leave their dwelling-place, they can be seen creeping around on the bark of the branches.

Likese larvae, which belong to one and the same family, are usually of the same size and undergo moulting at the same time, each one alone on its branchlet, I am told. When fully grown the likese larvae become restless and creep about in the tree. They change colour and look like dead leaves, and late in the afternoon (c. 17.00) the day after this change, they will leave the tree and come down the trunk in small groups. Then they scatter over the ground looking for suitable spots, where they can burrow themselves. The next morning they have all disappeared into the soil, where each builds its own house. In these houses they remain, and after one or two days they are transformed into pupae. When people say that a butterfly hatches from the pupa, they emphasize that it is very big and probably of the same colour as the caterpillar.

I noted the first caterpillars Oct. 14, the last ones Nov. 26. Fully grown specimens were, as far as I experienced, most common during the first half of November. The pupal stage lasted between 8 and 9 months. From Natal a 2nd generation is reported (Rougeot, p. 181). The occurrence of such a generation is denied by everybody at Kalundu. If a 2nd generation actually exists, it must at any rate be of negligible importance and relatively rare. Caterpillars similar to likese are known to feed on Julbernardia paniculata in the second part of the rainy season. They are named linzinzi.

The imago of Gynanisa maja is grey speckled with white. It has a wing span of c. 110 mm. Hind wing with eye-spot, of which red is the prevailing colour.

Most Kangali, Yauma, Mbunda, Nkangala, Lucazi, Luvale, Cokwe, Lunda (Shinde), Ayisenga, Ndembu, Lukolwe, Nkoya, Mashasha eat likese.

The Nkangala, Mbunda, Lucazi, Luvale, and Cokwe regard the pupa as edible. The Nkoya and Mashasha consider it to be inedible.

People like to eat the moulting likese. They do as a rule not want to take the larva earlier, as it is then too small. But throughout the final instar it is collected, both from the trees and from the ground.

Likese is generally considered delicious. It is praised for its enormous size, for its thick layer of fat, and for the nice taste. The fully grown larva, however, has an important defect from a culinary point of view. The skin is very thick and very leathery. Most people complain that they have to chew it for an unreasonably long time, before the skin is teared to pieces and can be swallowed. If many skins are gulped whole, one will get stomach-ache and constipation. These persons maintain that likese is at its best either when it is moulting or when it is still not too big (a size of c. 50–70 mm is measured out as being just right). Old people with bad teeth reject the adult larva. They prefer the pupa, which does not have any troublesome skin. But there are also some persons, who like the skin of the grown-up likese. It is juicy and nice, they explain, and one can chew it for a long time, before all the taste is gone. Nevertheless the great majority say, that if only the skin were not so thick and tough, likese would be the most delicious of all caterpillars. The saying goes that if one passes a house and hears a sound like koxo-koxo-koxo, one can be sure that the owner of that house is chewing likese larvae.

As soon as cikilakila has appeared, people start checking the ground under J. paniculata trees to see if there are any droppings of likese. Mostly, I am told, the women discover the first ones. Many a woman spends regularly a part of the day, perhaps half an hour or an hour, on searching for likese, when it has at last come. She mostly concentrates upon young J. paniculata trees, growing together in groves. There is seldom any likese in a single tree, my informants say. Having caught sight of fresh droppings, which could be supposed to belong to it, she will watch for gnawed leaves. Trained collectors can distinguish the traces of an eating likese from traces of other caterpillars. Likese eats several leaves to the stalk, but then it passes over one or two leaves without touching them, or consumes only half a leaflet. If the tree, in which one believes that there are fairly big likese larvae, is small enough, one starts at once to search for them. Likese is particularly difficult to catch sight of, because its colour is exactly the colour of a leaf, and when it is frightened, it withdraws the head, shrinks together to half its size and tries to take on the very form of a leaf. It can stay like

that for a long time, as it is exceedingly patient. If one strains the leaves between one's finger to get hold of it, one will find that it has even assumed the surface of a leaf, making it almost impossible to feel it. Nor is it any use to shake the tree. No likese has ever fallen down from its branchlet, to which it clings firmly. As a matter of fact there is nothing else to do than watch for it until one discovers it. On one occasion I observed a person trying to catch sight of likese-larvae, the droppings of which she had seen under a c. 2 m high tree. It took her about 5 minutes to discern the first one. The next two larvae she found rather quickly. But the difficulties are not over, when one has discovered the caterpillar. One must loosen it too. Likese has a firmer hold than any other larva, and one must be careful not to damage it.

Still when likese is collected and lies in one's hand, it does not move, attempting to make the catcher believe that it is dead and useless, people say. It is just like the jackal, which also pretends to be dead in a critical situation.

If the larvae, which one collects from a tree, seem to be adult and ready to pupate one has a reason for sifting the soil at the foot of the tree, as some larvae might have burrowed themselves already.

When the women have come home with likese larvae to eat, the men know that it is time to go searching for large likese families. One by one or together in a small group they set off at dawn for the forest. They walk fast, looking towards the ground. Under the trees, in which they are interested, there are large numbers of droppings, and more are continually falling down. One can hear the rustling when they strike against dead leaves on the ground. Now and then a snapped off leaf comes spinning. Crunching sounds are heard from the crown. The lucky searcher observing this knows that he has come upon so many larvae that it is worth while to fell the tree. When the axe has cut into the trunk once, all the likese larvae become silent, trying to bewilder the enemy. All the likese larvae keep still, when the tree has fallen, and it is a hard work to discern and collect them all. If it is not too far to the village, the man will perhaps go and ask some women for help.

If one does not want to take the trouble with cutting down the tree, one can wait until the larvae are ready to pupate. Then they may be gathered in the afternoon when they are leaving the tree. If one misses the opportunity, one can still find them in the ground.

In later times, and especially in bad years, it happens that people confuse likese larvae with lingongolila larvae, which feed on the same tree, and that the mistake is revealed only when the tree is cut down. Old people complain that profound ignorance has become so general. Formerly everybody, even young

persons, could see at a glance to what kind of caterpillars different droppings belonged. The droppings of likese larvae are bigger than those of other caterpillars. Further they are fibrous due to bad digestion, and their surface is uneven. The droppings of lingongolila larvae, on the other hand, my informants say, are small, more oblong, and their surface is smooth. But even if one does not know these fundamental matters, one should be able to identify the larvae in the crown just by observing the branches carefully. Lingongolila is not as quiet as likese, and will surely make its appearance, if it is there. If no caterpillar is seen, likese is probably hidden up there.

At an outbreak there will be so many big families of likese larvae that anyone who wants to can cut down perhaps 5 trees with at least 100 caterpillars in each the first day, and the same number the next day and the next again, the villagers say.

The season 1972 was a bad one. Two Mbunda villages made one greater catch each, corresponding to a proper meal of likese. Otherwise as far as I heard people found only small groups of these larvae. After Oct. 20 the women of most of the villages at Kalundu reported daily findings of a few likese larvae in abandoned cultivation. In the middle of November these reports became more rare, and on the 23rd of November some women told me that likese had now disappeared.

From the end of October rumours of outbreaks circulated, gaining more or less credence. Once it was said that there was an outbreak along the Nyango, and most of the men at Kalundu went away in the early morning. In the afternoon they returned tired and angry, having found that there were no larvae there, and that nobody nearer to the Nyango had heard of them. Such rumours were still afoot in December, although the women had given up looking for likese. Then also the greatest optimists admitted that this year had been a very bad year.

Likese is, with cikilakila, counted as the most important edible caterpillar of the early rainy season in the Kalundu region. Between 5 and 10 proper meals for the whole village is reckoned as the average, numerous lesser meals excluded. A tree with a big family yields a small gourd of squeezed caterpillars (c. 2 l). In an outbreak year anybody who wants to can collect as much as perhaps 20–30 l, it is said.

Fully grown likese larvae are easy to squeeze without waste of fat, because their skin is hard, my informants explain. Sometimes, if large quantities have been gathered, part of the catch will be preserved, but people generally prefer to eat likese fresh, and avoid collecting more than what is required the same and

the next day. Preserved likese larvae have, the villagers tell me, a still harder and more leathery skin than the fresh caterpillars. One has to boil them for a very long time to get them tolerably soft, and then they become insipid. The big likese pupa is traditionally a highly appreciated gift for old people. Old folks at Kalundu report how they, when they were young, used to fill gourds with pupae for their aged relatives, and ask why this happens so rarely today.

In exceptional cases likese larvae are to be found on the market.

Likese (Luvale) is available on munyumbe, Isoberlinia paniculata (=Julbernardia, F. WHITE, p. 125). April–Sept. (C. M. N. WHITE 1959, p. 13). The caterpillar is not to be found during the leafless period of its host-tree c. May–Sept. The statement may refer to one generation in April and one in the beginning of the rainy season, but this needs confirmation.

Several other statements in the sources can be connected with the larva of Gynanisa maja. The distribution of this species is very extensive. It is known from South, East, and Central Africa (ROUGEOT, p. 181).

THOMSON reports that the Lala (closely related to the Bemba) eat icinkubala, a bright green caterpillar. Icinkubala and mumpa (see p. 69) are the two largest and choicest types of caterpillars. Icinkubala is only found on the mutondo tree, Isoberlinia (=Julbernardia) paniculata, during a few weeks in November. The larva is said to occur in quantities in one region only. People come from all over the district, travelling even one or two days. Large areas are devastated. THOMSON predicts that within a few years all the mutondo trees will have disappeared, and that people will say that here there used to be many caterpillars, but now there are none (THOMSON, p. 33). THOMSON seems to believe that caterpillar populations are static, which is actually never the case. The larva referred to is probably the larva of Gynanisa maja.

MADAN (p. 36) mentions chinkuwala (Lala, Lamba, Bisa), an edible caterpillar. The Lamba name a kind of edible caterpillar, ichinkuwala, having umutondo as host-plant (DOKE 1931, p. 101). The Lenje eat zinkubala, a tree-living caterpillar (TORREND, p. 94). During my stay at Isoka I was informed by Bemba, Bisa, Namwanga and Mambwe people that they eat a large, green caterpillar, called icinkubala and found in November. Most of these informants mentioned mutondo as the only host-plant, but a few said that icinkubala also lives on mpasa, which according to F. WHITE (p. 441) refers to the tree Julbernardia globiflora. The term mutondo refers in Bemba and most other languages to Julbernardia paniculata (F. WHITE, p. 443).

More uncertain reports from the miombo zone are given by YOUNG, TURNER, COLLE and WOODS.

Young (p. 128) states about the Tumbuka Kamanga peoples that if rains come of late October–November when the edible caterpillar, matondo, is taken from the trees, they say that these rains make the matondo grow. According to Turner (p. 142) thondo (pl. matondo) (Tumbuka) is a large, spiky caterpillar (green on foliage, brown on tree-trunks).

From Zaire Colle (vol. I, p. 189) reports that the Hemba, a Luba group, collect green caterpillars, which are always found on the same kind of tree during a certain period of the year, when they eat the leaves with an extraordinary voracity. According to Woods (p. 55) the Kaonde cut down considerable areas of timber in October or thereabouts to obtain the delicacy jiungu which is a large edible caterpillar.

Further the species is known from Acacia country.

My Kangali informants say that likese larvae are found sparsely on Acacia trees in their country, but that the larvae are common in Julbernardia paniculata country. This is in accordance with what Quin relates from the Transvaal. The Pedi eat, Quin asserts, legakgale, the larva of Gynanisa maja, when it is fully developed. There is one generation in c. December–January. In the heat of the day the larvae go high up in the trees. The host-plants are Acacia campylacantha Hochst., Peltophorum africanum Sond., Gymnosporia senegalensis (Lam.). Supplies are usually insufficient to warrant preservation (Quin, p. 108). Quin mentions nothing about the leathery skin.

Rougeot (p. 181) reports that in Natal two generations occur, and that also Elephantorhiza burchelli is a host-plant of the larva of Gynanisa maja.

Lizoto

Lizoto, ma (M, Nk, L), lisoto, ma (Luv), citutuvungu, vi (C), tutuvungu, ma (C), rishabamema, ma (N) the caterpillar of Cinabra hyperbius (Westw.) (Attacidae).

Host-trees: Julbernardia paniculata, Brachystegia spiciformis.

Season: middle of rainy season (c. Jan.–Feb.).

The identification is based upon a study of the moth. Larvae of the last three instars (from a length of c. 25 mm) have been reared. Pupa and imago have been obtained.

A few Ngangela say that lizoto (lisoto) is a derivation from zotoka (sotoka), drip (e.g. as water from trees after a rain). The general opinion, however, is that the caterpillar has received its name, because it appears when the last maize is sown, or because when it appears the peasants know that the maize must be sown immediately. Actually it is at this same time water is dripping from the trees and from the roofs all the day. Citutuvungu (tutuvungu) is a compound of

citutu and yungu. Yungu is the general Cokwe term for caterpillar. The meaning of citutu is unclear. One suggestion is that it is a derivation of tuta, drip. Rishabamema is a compound of shaba, sound of feet squelching in mud, and mema, water. The larva is named like that because its appearance forebodes this season of the year, the Nkoya say.

People know of one kind of lizoto, without varieties. It is regarded as a close relative of likese.

Lizoto is described as being of thumb-size with a leaf-coloured/white/whitish skin. Very small spines, which are reddish/red/black/blackish, are thinly scattered over its body. A black/blackish/reddish spot is said to be found on its neck. Another spot of the same colour is found on its rump. Sometimes people say that these spots are fringed by white markings.

Lizoto is distinguished from likese by its shorter and thinner body and above all by its spines, which are considered to be very characteristic.

My informants know well that lizoto moults once. The pupa has never been seen, they say, but they think that it is similar to the likese pupa and burrowed just as that one.

Larva, instar before penultimate: Before moulting it is c. 25 mm long, similar to larva in penultimate instar, but with brown head and c. 2 mm long blunt spines with setae.

Larva, penultimate instar; very similar to final instar. Before moulting c. 45 mm long with 1 mm long naked spines.

Larva, final instar (fully grown): c. 80 mm long, c. 15 mm broad, weight c. 7 g. Head green. Body green with lateral c. 0.5 mm broad whitish stripe under spiracles. Spines c. 0.5 mm long, medium brown. Two dorsal rows of spines, one pair on each of somites 2–10. Spines on somites 2 and 3 blunted. 11th somite with single median, fused spine. Thoracic shield dark brown with anterior border whitish. Anal flap triangular, dark brown, outer borders with tubercles. 2nd–11th somites with two lateral rows of medium brown c. 0.5 mm long spines, one over, one under spiracles. Spiracles brown, lined with red. Venter green. Before pupation caterpillar turns brownish.

Pupa c. 40 mm long, black, found at a depth of a few centimetres in the soil.

Most people including the Nkoya recognized displayed lizoto larvae of the two last instars. Nobody identified the larvae of the preceding instar. The mentioned dark spot on the neck and the one on the rump turned out to be identic with the thoracic shield respectively with the anal flap. The talk about white markings is obviously due to confusion with linzinzi.

The Ngangela and Cokwe look upon lizoto as a typical caterpillar of

abandoned cultivations, but also as an inhabitant of other places with young trees. Every villager knows that it feeds on Julbernardia paniculata. Also Brachystegia spiciformis is pointed out as its host-tree, but it prefers J. paniculata, and is only seldom found in B. spiciformis trees, people say. The reason for this latter opinion is probably that B. spiciformis is less common in the Kalundu region. Some of my informants, who had lately arrived from areas, where both trees are common, told that lizoto likes the one kind of tree as much as the other.

The Nkoya do as a rule not know the host-plants of this caterpillar, but say that they have seen it on shrubs of all kinds.

The Ngangela and Cokwe know that lizoto appears once a year in the middle of the rainy season, foreboding the very wet time. It is said to disappear before the rains cease.

Lizoto is distributed all over the territories of the Ngangela and Cokwe in Angola and of the Nkoya in Zambia. It is to be found at Kalundu.

The number of lizoto larvae does not fluctuate much from year to year, my informants maintain. Every year there are at least some. They live one by one or in small groups, usually not more than 5 larvae together.

The Ngangela and Cokwe consider lizoto to be a very restless larva. It does never stay for more than a short time on the same host-plant. People sometimes find it feeding on shoots from a stub in the middle of e.g. a cassava-field. The members of a lizoto family moult scattered one here and one there either on a host-tree or on some other plant as e.g. on a stalk of grass. One never sees a lizoto on an old tree, most of my informants say. It prefers low, young trees around fields and villages. It also likes the company of cingovi. These two caterpillars are now and then found together on the same plant. Only few persons reported that they had observed lizoto on old, grown up trees. They suggested that the larva had got there by mistake. The idea that lizoto avoids big trees stems probably from the fact that these caterpillars never live in so large groups in the old trees that their droppings or the traces after their gnawing attract attention.

The Nkoya only know that these larvae live singly or a few together.

I obtained a fully grown specimen Jan. 10 from J. paniculata. Jan. 11 some specimens were found on the lower branches of an old B. spiciformis tree. The last lizoto larva was observed Feb. 7. The reared larvae accepted B. spiciformis leaves as willingly as J. paniculata leaves, independently of on which tree they had been found.

Most Mbunda, Nkangala, Lucazi, Luvale, Cokwe women and children eat

lizoto. Men eat it only rarely. The Nkoya and Mashasha regard it as inedible. The pupa is not eaten.

The caterpillar is eaten from the last moulting. If one finds just one larva, I am told, one does as a rule not bother to collect it, but 3 or 4 will do. Children take also single specimens. Most of my informants say that they do never gather lizoto larvae that are less than c. 60–70 mm long. Neither burrowed larvae nor pupae are gathered, because it is considered to be impossible to find them. Lizoto may choose any place to dig itself into the ground.

Men regard lizoto as women's and children's food. They do not want to eat it, because it is not nice enough, some men say. Others report that it tastes well, but that it is traditionally reserved for women and children. Once I was present when a young man took two lizoto larvae out of his pocket and began to roast them on the fire in the meeting-house of the men. When the present men recognized the larvae, he was teased. They suggested that he should go away and eat with the women. They also mockingly accused him of stealing the food of the little children.

Women and children praise lizoto for its fat and for its nice taste. It is almost as delicious as likese, they say, even if it is not quite as fat. Its skin is not as leathery and troublesome as likese's.

Men, women, and children gather lizoto. Children and sometimes women go searching especially for it. Men say that if they happen to catch sight of some lizoto larvae, they collect them and bring them home to the children. Women mostly collect lizoto casually, when they discover a group in passing. Sometimes they find enough for a proper meal, but as a rule they get a few to share with the small children and eat as a snack. Halfgrown children are, however, the ones who devote themselves most to searching for lizoto. They make excursions in the abandoned cultivations around the villages and the fields with a view to collect lizoto larvae. Even a very young child, who has just learnt to walk, may occasionally discover and pick up a lizoto or two.

All agree that it is very easy to catch sight of. It is not cunning at all, and remains quite visible, eating and moving around as usually, when an enemy approaches. It is never afraid and will never hide.

My informants say that normally a child can find a dozen lizoto larvae in a year. A single person will hardly collect more than 40 or more than half a small gourd of squeezed larvae during a season.

Feeding lizoto larvae are prepared in the common way. Non-feeding ones are roasted directly. They were mostly roasted at once, on a fire in the field or in the village.

Lizoto is also an important sign of the beginning of a new season, the kuvozi time, during which there is a permanent dripping of water from the trees and from the leaking roofs. People say that it forecasts the second caterpillar season. Moreover, when it appears, the peasants know that it is high time for them to sow the last maize, if they have not already done it. Otherwise there will not be enough time for it to ripen before the cold season. Actually most of the maize is sown already in October–December, but for one thing people know that the first and also the second sowing may fail, and so they will always save some seeds in order to be able to try a second and a third time. For another thing they like just ripening, fresh maize, and in this way they will get it as late as in May.

Linzinzi

Linzinzi, ma (M, Nk), lizinzi, ma (M), lindzindzi, ma (L), lisindzi, ma (L), lijiji, ma (Luv), ciheso, yi (C), -(N) a number of species of the genera Lobobunaea, Pseudobunaea (Attacidae).

Host-trees: Julbernardia paniculata, Brachystegia spiciformis, Brachystegia type longifolia, Pterocarpus angolensis, Diplorhynchus condylocarpon.

Season: middle of rainy season (c. Jan. – Feb.).

I have identified one species of the genus Lobobunaea by studying the moth. Caterpillars of this species (final instar, from a length of c. 45 mm) have been reared. Pupa and imago have been obtained. The reared caterpillars are according to my informants typical linzinzi larvae. Some persons give, however, information indicating that yet one or several species with similar appearance are regarded as varieties of the linzinzi kind.

The Mbunda disagree about whether linzinzi or lizinzi is the correct term. Linzinzi is the more common designation.

People are not sure of the etymology of the names. One suggestion is that the Ngangela terms (except lijiji) are derived from zinda (M), ntsinda (L), bee-bread, egg yolk, the larva's fat being similar to these delicacies, or from mazi, fat. Another proposal is that these terms are derivations of nzimbi (M), ndzimbi (L), which is a name of the season when the larva occurs. The most common opinion, however, is that these terms and also lijiji are in some way connected with the words for house-fly, nzinzi (M), ndzindzi (L), jiji (Luv), but nobody can give any closer explanation (compare the etymology of liziavulo, likaulanzinzi, which are found at approximately the same time of the year).

Old and middle-aged people, who are as a rule the only ones who know of linzinzi, say mostly that there is just one kind of this larva, without any varieties. Some persons maintain that there are two varieties, which are to be found together, on the same trees. One type they describe as quite similar to likese, the

other they describe as possessing two white spots or horns. Some other informants, however, believe that the two larvae in question are in fact of two different kinds, which feed on different kinds of trees, and that the one with the white spots or horns has got a name of its own, but that nobody remembers this name nowadays. Yet a few persons are of the opinion that these two different kinds of caterpillars feed on the same trees.

Likese is counted as linzinzi's closest relative. They are very similar, people think.

Linzinzi is described as being as big as a thumb or bigger, with a skin coloured like the leaves upon which it feeds. It has got no spines. Those persons who think that there is just one type of linzinzi, and who have no idea of a larva with white spots or horns report generally that linzinzi is just like likese, and that the only difference is its somewhat bigger size and the fact that they appear at different times of the year. Those persons who talk of a larva with white spots or horns often seem to be better acquainted with the common type of linzinzi. They frequently say that it as distinguished from likese has a white stripe along the flank. About the other type little is known except that it has the mentioned two white spots or horns or perhaps both spots and horns on the neck.

A few persons maintain that linzinzi is twice as bit as likese, or that some linzinzi larvae, or some of the linzinzi larvae, which do not have horns, are twice as big as likese.

People suppose that linzinzi moults once as likese, and that the pupa should be big and black and buried in the soil, but they admit that they have never seen either the moulting or the pupa. The linzinzi larvae are too few to be easily observed, they explain.

The descriptions refer to at least two species. Only two genera can be taken into consideration—Lobobunaea, Pseudobunaea. The general accounts given fit in with many of the numerous species belonging to these genera. As none of my informants is really familiar with linzinzi, it is impossible to elucidate the circumstances thoroughly. Perhaps the Ngangela and Cokwe traditionally distinguished two or three or even more kinds of caterpillars, each one corresponding to one species of Lobobunaea or Pseudobunaea. Maybe they have distinguished one or two or more kinds, each one corresponding to more than one species of these genera. This is not very probable, however, as the eaten caterpillars as a rule are discriminated as scrupulously as by entomologists. But maybe the linzinzi larvae have never been very well-known. The possibilities are many. I can not even report how many species of caterpillars that are nowadays counted as linzinzi larvae, since I have only found two species of the genera in question.

But it seems most probable that two or three ethno-species are in question, and that they correspond to two or three entomological species. The more uncertain case of the three is that of the huge caterpillar, which is mentioned now and then. It is said to be twice as big as likese. There is actually an extraordinary big larva, which could be the one, viz. the larva of Lobobunaea christyi Sharpe. It is according to ROUGEOT (p. 152 f.) 150 mm long when fully grown, and has a weight of 15 g. Information about size is, however, often not very reliable.

On the 19th of January I obtained a c. 45 mm long larva from Pterocarpus angolensis. It is characterized by a pair of subdorsal silvery patches on somite 5, ending in protruding c. 2 mm long acuminate tubercles. A broad white lateral stripe is also present. Those among my informants who had talked about a larva with white horns or spots, stated that they had thought exactly of this caterpillar. They may be right, but they did not seem to be too well acquainted with it, and there are several other species of larvae belonging to the genera Pseudobunaea and Lobobunaea, that have similar markings.

On the 12th of January I obtained a 50 mm long larva from Diplorhynchus condylocarpon, reminiscent of likese but without the silvery dots. The lateral stripe was broader and not underlined with red. Jan. 31 I got 3 fully grown specimens of the same type from Julbernardia paniculata: c. 80 mm long, c. 18 mm broad. Weight c. 11 g. The obtained imago belongs to the species Lobobunaea saturnus Westw. Descriptions given by ROUGEOT (p. 137 ff.) of the caterpillars of Pseudobunaea and Lobobunaea species fit well in with my larvae, which were said to be of the common linzinzi type. It was evident that the latter kind was more familiar.

Displayed specimens of the kind similar to likese were generally named likese by young people, who obviously forgot that the likese season was finished long ago. Also elderly people sometimes identified them as likese larvae. Many of my informants said that they were relatives of likese, but could not remember their names. Others stated that they were linzinzi larvae, and pointed to the white stripe and the time of the year. Specimens with horns were immediately classified as linzinzi larvae by people who knew about this type.

Linzinzi is associated with open habitats like abandoned cultivations and glades of forest. It is also to be found on low branches of old trees, my informants say. Brachystegia spiciformis and Pterocarpus angolensis are the most frequently indicated host-trees. Julbernardia paniculata and more rarely Brachystegia type longifolia and Diplorhynchus condylocarpon are also pointed out. A few persons state that the kind with horns is only found on Pterocarpus an-

golensis, while the more well-known kind only lives on the rest of the mentioned trees.

Linzinzi is said to occur at the same time as lizoto.

The caterpillar is known to be sparsely distributed throughout the areas of the Ngangela and Cokwe in Angola, and of the Nkoya in Zambia. It is to be found at Kalundu.

The habits of linzinzi are similar to those of likese, people say, but linzinzi lives mostly in groups of two or three larvae together. Sometimes one can find as many as 10 in a family, but, most of my informants report, one will never come across larger groups. One Cokwe man claims that the type with horns is more common to the west, where it lives in families with 100 members or more.

The Mbunda, Nkangala, Lucazi, Luvale, Cokwe eat linzinzi. The Nkoya and Mashasha do not.

The edible size of linzinzi is the same as that of likese, I am told, but as a rule only fully grown specimens are found. The pupa is not eaten, because nobody knows where the larva buries in order to pupate.

Both men, women, and children appreciate linzinzi. It is as nice as or even better than likese, because it is bigger, people assert.

It is predominantly women who gather linzinzi. The larva is known to be difficult to find, because it is green and smooth like the leaves, and because it moves slowly and cautiously and keeps very quiet when danger approaches. Mostly it is discovered by accident. Formerly people used to find linzinzi a few times every season. Nowadays it has become rare, I am told, and it is found only now and then. It is probably not much searched for. As a rule there is not enough for a proper meal, but only for a snack and then it is roasted.

CHAPTER 3

Edible semi-loopers

The mbandama genus 1. mbandama 2. ñuviñuvi 3. kauluulu

These larvae are distinguished by their way of moving in loops. Further they have a thin, rather long body with smooth skin. The Mbunda know of three kinds belonging to the genus, the Nkoya know of none. Each one of the three kinds probably corresponds to one entomological species. All of them are considered to be edible by the Mbunda.

Mbandama

Mbandama, va (M, Nk), mbandamaxexe, va (M, Nk), mbandakaxexe, va (Nk), mbandamasese, va (L), mbandasese, va (Luv, C), vandasese, -(C), cikombavuto, vi (C), -(N) the caterpillar of Sphingomorpha chlorea Cr. (Noctuidae).

Host-tree: Burkea africana.

Season: before the rainy season (c. October).

The identification is based upon a study of the moth. Larvae (from c. 15 mm) have been reared. Pupa and imago have been obtained.

Mbandamaxexe is the common word in Mbunda, mbandamasese in the other Ngangela languages. One sometimes also hears the term mbandama, which is known to be the true Mbunda term. Most Cokwe say mbandasese or vandasese, but some maintain that cikombavuto is the correct Cokwe word. Other Cokwe maintain that cikombavuto is instead a name of the caterpillar kakomba.

Mbandula (Luv), sp. of edible caterpillar (C. M. N. White 1959, p. 13).

Mbandamaxexe and the allied terms are compound words. The first part is said to be the same as mbanda, cling close to. The second is said to derive from muxexe (musese), B. africana, the larva's host-tree. Mbandama is a short form of mbandamaxexe. The caterpillar clutches tight on to the bark and is very difficult to loosen, explain my informants. The Cokwe think that vandasese is a compound of vanda, scaly bark of tree, etc., and musese. The caterpillar is found only on the scaly bark of the old tree, they explain. Vuto in cikombavuto means white, or ash, they further say. When gathered this larva makes the fingers ash coloured. Hence the name, I am told.

One kind of mbandama is known. Two individual types are recognized, one more dark, like a dead leaf, and one more light, like ash on the herd. Both varieties are found together on the same tree, my informants say. Mbandama's

closest relative is ñuviñuvi. As kauluulu's habits are different, mbandama is mostly considered to be more distantly related to it. Sometimes lixexe is referred to as a relative, and a couple of times kakomba was associated with mbandama. The reason for this is possibly that these three larvae (mbandama, lixexe, and kakomba) have the same host-tree.

Mbandama is described as small, thin, and similar to a little twig. The skin is said to be coloured like the bark of B. africana, or else to be speckled. On the anterior part of the back there is a red dot, according to what most people except the ignorant know.

Mbandama does not moult when growing, people say. It is so small and eats so little that it does not need to. The pupa is described as small, black, and found just under the surface of the ground among litter.

Larva, final instar: c. 55 mm long, c. 6 mm broad. Weight c. 1.5 g. Head pale brown. Body glabrous; colour alternatively white, grey/brown, black with wavy, longitudinal lines. 5th somite dorsally with anterior red dot, hidden from sight by 4th somite, except when body stretched, partly seen when caterpillar walks. 6th somite with corresponding but bright yellow spot. This spot is generally not noticed by my informants, except when they scrutinize displayed specimens. Legs ringed. Prolegs and venter light greyish. Venter with c. 2 mm broad median stripe. After last moulting most of the grey specimens I observed became brown. This brown variety seems to be the most common in the final instar. In the earlier stages the grey variety seems to predominate.

Pupa: c. 17 mm long, dark brown. In a slight cocoon among litter on the surface of the soil.

Displayed mbandama larvae of the final instar were identified by most of my Ngangela and Cokwe informants. Mbandama larvae of earlier instars were as often called ñuviñuvi or kauluulu as mbandama, until they were scrupulously examined and the red dot was discovered.

Mbandama is a caterpillar of the Burkea africana forests fringing flooded plains, grasslands and dambos. Burkea africana is singled out as the sole host-plant.

The larva appears after the first shower during the hot and moist time (c. October) preceding the rains. When the real rains come it disappears.

The Yauma, Mbunda, Lucazi, Luvale, Cokwe say that mbandama is distributed throughout their territories in Angola, wherever suitable habitats occur. Also the Kangali know of it as an inhabitant of B. africana forests fringing the Kubango river in Angola. In Zambia it occurs in the territory of the Nkoya. It is also to be found at Kalundu.

In certain years mbandama becomes abundant, and then the larvae may strip the trees in some places of their leaves, but mostly they are more sparsely distributed in scattered groups. There are several years between one outbreak and the next, people report. Most years are regarded as bad years, when they seem to be vanished, or when a lucky person may find a single family. Outbreaks occurred in the years 1957 and 1963, when mbandama was common everywhere. Since then people have heard of very few discoveries.

My informants say that mbandama lives only on old trees with the bark of the bole roughly fissured, and only where there is a greater number of its host-tree. It eats very little and only during the night, and rests, perhaps sleeps, all the day. When the first cock crow is heard (i.e. when dawn is close) it stops feeding in the crown and creeps down the branches and the trunk until it finds bark with deep fissures. Here it looks for hiding places. Mbandama larvae are especially fond of holes of all sorts, e.g. woodpecker holes, the bigger the better, because all the larvae of the tree want to stay together. In such a cavity layer upon layer of caterpillars may be found. If there are no suitable holes, they scatter in groups and hide under bark flakes or in larger crevices. Sometimes when there are few good hiding-places, they choose a fissure and fill it from the foot of the tree up to where the smooth bark begins, i.e. where the bole is branched. Even if they are then not really hidden, they are very difficult to discern, as their colour is very similar to the colour of the bark. Towards nightfall they creep up again to the crown and start eating. Mbandama larvae eat carelessly. They usually leave serrated, half eaten leaves behind. Often they rest content with biting a hole in the leaf.

To explain mbandama's peculiar way of moving by arching itself most people say that it has the one pair of feet near the head and the other at the rear end. It just has to walk as it does, it is argued. Some persons protest and say that it has its feet placed just as other caterpillars, and that it walks in its own way, because it is its custom.

I obtained the first specimen (c. 25 mm long) Oct. 9. The first mbandama ready for pupation was noticed Oct. 18, the last Oct. 29. In a group of larvae gathered from the same tree a difference in size of 30 mm between the smallest and the biggest one was measured, although the majority of the caterpillars seemed to be of roughly the same size. I observed traces of mbandama in almost all old B. africana trees, independently of whether they grew in groves or single. As far as I could judge from the amount of droppings only perhaps 2 or 3 specimens were present in each one of these trees. Their identity as mbandama larvae could be established with the aid of several solitary larvae. When I asked

people to search for mbandama in a grove, where I had discovered droppings or even a larva, they did as a rule not catch sight of anything at all. A few persons commented that there were some mbandama caterpillars, but that it was not worth while to collect them.

The pupal stage lasts about 3 weeks. From the second half of November until the beginning of December the moth is very conspicuous and common, and is on the wing from dusk to dawn. It is readily attracted to juice of fruit and moisture. People do not take any notice of its presence. When pointed out it is just called nkandikulioca, a term used for any insect flying at night and having a tendency for flying into the fire. One woman maintained, when I asked her, that it was a cikilakila butterfly, and said that her mother had told her so when she was a child.

It is remarkable that most people do not know that mbandama is leaving a thread behind wherever it creeps in the tree. The thread is, however, thin and does not catch the eye readily. When I pointed at mbandama threads on bark the villagers believed that they were spider threads, to which they are actually similar. Many of my informants are, however, acquainted with the thread spun by mbandama larvae creeping around on the ground, ready to pupate.

Most Kangali, Yauma, Nkangala, Mbunda, Lucazi, Luvale, and Cokwe eat mbandama. The Nkoya and Mashasha regard it as inedible. The Ngangela and Cokwe say that they do not eat caterpillars that are less than about 30 mm long. As a rule they do not find smaller ones either. A young mbandama is considered to be as well-tasting as an old one, but people prefer to wait and collect the larvae, when they are full-grown or nearly so. Mbandama is gathered from the tree-trunk or from the ground, when it has left the tree in order to pupate. The pupa is generally not eaten, because it is too small, say my informants.

The opinions are divided about the taste of mbandama. People mostly agree that mbandama is not as nice as ñuviñuvi. Some persons complain of its lack of fat and maintain that its taste is sour. Others say that they like it and rate it as good food.

In outbreak years people search especially for mbandama. Otherwise it is as a rule found by persons who are looking for kakomba, which caterpillar occurs at the same time in the same habitat and in a greater abundance. When mbandama has been absent for some years most people will forget it, till they find it by coincidence, or till there is again plenty of it.

Along the Namalati relatively few mbandama larvae are to be found, people say.

Mbandama is said to be more clever at hiding than any other liungu. It is no

use looking for it in the crown, because during the day it rests and is not there, and it does not eat so much that one can see the damage on the foliage. Only rarely, when there are extraordinarily many larvae in a tree, one can discover their presence by noticing that the leaves are few and ragged.

The correct method is to examine the ground close to the foot of the tree for pellets. One should not bother to search under the crown, because it is difficult to find the small droppings in the vegetation there, while it is rather easy to catch sight of them under the resting-place of the caterpillars, if there are enough to be collected. When one has found the little heap of fresh excrements, one ought to check if there are any holes or loose pieces of bark, where the larvae may be hidden. Sometimes one has to widen a hole with an axe, before one can get them out of it. But often there is no hole, and one must try to discern them against the bark. Then one should take a little twig or a grass-stalk and move it cautiously over the surface, until at last one mbandama can not stand being tickled, and reveals itself and the string by wriggling the body and moving away. It is very important that one does not lose one's patience; if one frightens the caterpillars by drawing the twig violently over them, they will never move. When the first larva is discovered, the others will soon be detected, too. Now one has to pick them very quickly, because they all feel disturbed, understanding that one is an enemy. The larvae, which are close to a gap left by a comrade already collected, try to escape and hurry away rapidly. Not far off they stop and get lost out of sight again.

Some persons say that one can take a stick and scrape down all the larvae, but one must be very careful then, because when they fall down they lie motionless and are not easily seen. Whether one picks them or scrapes them down, one has a lot of trouble to loosen them from the bark, to which they cling firmly.

If one has ruffled the quiet of the remaining caterpillars very much and made them disappear in different directions, one has better wait till the next day. Mbandama larvae have a habit of returning to the same place day after day, the only difference being that they fill the gaps after lost members of the family, I am told.

Some of my informants maintain that the best thing is to wait until the mbandama larvae are ready to pupate. Then they leave the tree and bury in the soil under the crown close to each other. One can track them with the aid of the threads.

Once a couple of younger women wanted to help me search for mbandama. They pulled off flakes of bark and looked underneath. Passers-by stopped and asked what they were doing, and explained that in this way we would never find

any mbandama. They also emphasized that as there were no droppings, there could be no caterpillars. The few pellets on the place were not observed either by them or by the women who were criticized.

Children seldom find any mbandama larvae. They are too difficult to detect.

Mbandama larvae which are collected in the afternoon may be eaten directly, without preparing, as they have then emptied their stomachs of droppings, say some of my informants. Others agree that they are free from excrements towards the end of the day, but maintain that one nevertheless must draw off the head together with the alimentary channel, which sticks to it. If one wants to cook larvae collected in the morning at once, one should proceed in this same way. One can also keep them alive in a gourd until the afternoon. It is according to my informants not possible to remove the stomach contents of mbandama by squeezing, without destroying the caterpillar.

Some rare time one can fill a small gourd (c. 1 l) with mbandama larvae from one tree. Mostly one will not find half that quantity at once. In outbreak years mbandama larvae may be eaten several days in succession by the whole village, but in an average year there will perhaps not be one single proper meal. In 1972 I only found one woman at Kalundu who could report having eaten mbandama. She told me that she had gathered about a fistful.

Mbandama is always boiled, never roasted, and it is always eaten fresh, people say. It does not occur in the market. Preserved mbandama larvae are said to be tasteless.

The Luvale gather mbandula on musese, Burkea africana, Nov.–Dec. (C. M. N. White 1959, p. 13). This caterpillar disappears, however, both according to my informants and to my own observations, with the rains in November. In Kaoma District it is to be found about in October.

Ñuviñuvi

Ñuviñuvi, vi (M), nkuvi, va (Nk, L, Luv, C), kankuvi, tu (L, Nk), katikankuvi, tu (L), katonde, tu (C), -(N) kind of semi-looper.

Host-trees: Julbernardia paniculata, Brachystegia type longifolia.

Season: before the rainy season (c. October).

Solitary semi-loopers pointed out by villagers as ñuviñuvi larvae have been observed. A few held in captivity succeeded in pupating, but failed to hatch.

In colloquial language the Nkangala, Lucazi, and Cokwe mostly use the term nkuvi.

Katituankuvi, katikankuvi, nkuvi (Ng), ñuviñuvi (M), sp. of edible caterpillar (Pearson); katonde (C), kind of caterpillar (MacJannet).

The names ñuviñuvi, nkuvi, kankuvi are thought to be derivations from the same root, either from kuva, sow—the larva is to be found at the sowing-time or from kuvila, toss a fistful of food into mouth—the ñuviñuvi larvae are so small that one must gather many of them to get a bit to taste. The Lucazi say that katikankuvi is a compound of kati, twig, ka, of, and nkuvi—the larva is very similar to a small twig, they explain. The name katonde is according to the Cokwe either a derivation from katondwe, which is the name of the season, when mutondo/mukondo, J. paniculata, is bursting into leaf, or from mutondo.

One kind of ñuviñuvi is known. No individual types are distinguished. Ñuviñuvi is most closely related to mbandama, people argue, because neither of these larvae spins threads all over the tree like kauluulu. A few old persons said that ñuviñuvi is the younger brother of mbandama. Some people maintain that ñuviñuvi is surely more closely related to kauluulu, because they are very similar. Ñuviñuvi is very small, thin, and similar to a little twig. It is speckled/white/whitish/coloured like bark and about half as big as mbandama, report my informants. They have also noticed that it does not have mbandama's red stain on the neck.

People say further that ñuviñuvi does not moult, and that the pupa must be very small, black, and buried in the ground. Yet they admit that they have never seen the pupa. It is too small to be observed, they declare.

When one ñuviñuvi was shown in a village, it was alternatively identified as ñuviñuvi or as kauluulu. When two were displayed, many a person asserted positively than the one was ñuviñuvi and the other kauluulu. Sometimes the exhibited specimens were confused with young mbandama larvae, but on closer examination the mistake was soon cleared up, as no red spot was found.

Larva, final instar: c. 30 mm long, c. 4 mm broad. Weight c. 0.4 g. Head pale brown. Body glabrous, striped with longitudinal, wavy lines. Two colour varieties, the one greyish with white, grey and black curves, the other greyish with white, brown, and black curves. The more grey and the more brown specimens may occur in the same tree. People in the Kalundu region do not know of the existence of two varieties. Grey specimens of the penultimate instar may become brown after the last moulting. Legs, prolegs, anal flap, and clasper pale brown. Venter pale bluish with median brown line. Generally 1st–6th somite each with two opposite dots. Fading dots on the next somites.

Pupa c. 6 mm long in a tough cocoon, which is c. 8 mm long and c. 4 mm broad, made of brown silk. Colour of pupa chestnut brown.

Ñuviñuvi is found on the Julbernardia paniculata tree, according to my informants. Sometimes also Brachystegia type longifolia is pointed out as host-tree.

During the hot and damp time (c. October) after the leafing of the host-trees the ñuviñuvi larvae emerge. They disappear with the beginning of the real rains.

People report that ñuviñuvi occurs in J. paniculata forest in the territories of the Mbunda, Lucazi, Luvale, and Cokwe in Angola and of the Lunda and Nkoya in Zambia. It is to be found in the Kalundu region.

Certain years ñuviñuvi becomes abundant. In the years in between it is mostly very rare; a few lucky persons may discover perhaps a fistful in such a bad season. After about 5 years it will be common again. The ñuviñuvi larvae do not even in outbreak years strip the trees completely of their foliage, but every leaf may be riddled with holes. A heavy outbreak occurred in the Kalundu region and also in adjoining areas in 1964. Since that year nobody has heard of them.

My informants say that the habits of ñuviñuvi are similar to those of mbandama. Thus it is only found on old trees with scaly bark. It feeds mainly at night, but also in the early morning hours, until the sun becomes strong (c. 8.00). Then all the ñuviñuvi larvae of the tree will leave the crown together and walk down. They assemble close to each other in a hole, if there is any, or else they make a line (c. 25 mm broad) along the trunk. During a cloudy day they may remain in the crown. Ñuviñuvi is considered to be more restless than mbandama. Now and then a larva resting on the trunk will move and creep away a bit, before it settles again. People explain that ñuviñuvi is nervous because it is afraid of kaliañuvi, which is its worst enemy. Kaliañuvi is described as a small bird similar to a woodpecker and always on the hunt for ñuviñuvi larvae. It starts looking for them at the foot of the tree, and then it moves upwards checking every creak. Its name means ñuviñuvi-eater (lia (M), eat). The bird in question is the tree creeper, Salpornis spilonota (Certhiidae).

I obtained the first specimens (c. 10–25 mm long) Oct. 19, from J. paniculata. Subsequently a few solitary larvae were obtained up to Nov. 14. Some of the caterpillars I got from young trees, where they according to my informants would never stay. Probably people do not bother to look for them on small trees, as there will never be any large groups of them there.

Most Mbunda, Nkangala, Lucazi, Luvale, and Cokwe eat ñuviñuvi. The Nkoya and Mashasha do not eat it. People do not care for the size of these larvae. If they are only many enough, even small ones are gathered. But specimens that are smaller than about 20 mm are hardly discovered. As a rule people take interest only in very large families of ñuviñuvi, forming a line from the foot of

the tree up to where the bole ramifies. The larvae are generally not collected from the ground, because, I am told, they scatter and hide so they cannot be found. When they leave the tree in order to pupate they spin thin threads, which could perhaps be tracked, but the threads are, people say, actually almost invisible.

The taste and smell of ñuviñuvi are rated as delicious. People compare this larva with likese, but complain that it is thin and poor in fat. Men, women, and children prefer ñuviñuvi to mbandama and kauluulu.

It is mostly the likese-searchers who find ñuviñuvi larvae. Somebody looking for likese may discover ñuviñuvi instead, and then people know that this year it is worth while to search especially for this caterpillar. This is perhaps the reason for the general opinion that ñuviñuvi is more common on J. paniculata than on Brachystegia, where there is no likese to be found.

Ñuviñuvi is collected by men, women and children. People agree that it is easier to catch sight of ñuviñuvi than of mbandama, because the former is not so quiet and will readily attract attention. If one has discovered a single ñuviñuvi, one tries to estimate the amount of larvae in the tree by looking at the crown and by checking if there are many droppings. A small ñuviñuvi family could as well be left where it is. The trouble to gather the larvae would be too great. But if the family is thought to be large, one should localize the file with the aid of a twig or the finger-tips. A lucky person may fill a small gourd (c. 0.5 l) with ñuviñuvi larvae from one trunk, but as a rule one will have to find 3 or 4 families to get this quantity.

The heads of the newly-captured larvae are nipped off. Ñuviñuvi is always boiled, never roasted. It is never preserved, as there are not many enough, and as it gets tasteless from preservation. In an outbreak year there may be several proper meals of ñuviñuvi in a village.

Ñuviñuvi is never to be found in the market, people say.

Kauluulu

Kauluulu, tu (M, Nk, L, Luv, C), kahuluhulu, tu (Nk, L), limpundiangela, ma (Nk, L), mpundia, va (L), -(N) kind of caterpillar.
Host-tree: Cryptosepalum pseudotaxus.
Season: before the rainy season (c. October).
I have not seen this caterpillar. The descriptions indicate that it is a semi-looper.

The term kauluulu is well-known and used in colloquial language. Most people maintain that this word properly belongs to their own dialect. A few Lucazi and Nkangala asserted, however, either that kahuluhulu or lim-

pundiangela is the correct term, or that there is another forgotten name in their languages.

Kaúluúlu, limpundiangela (Ng), sp. of edible caterpillar (Pearson); vunkundiangela (ng), caterpillar, larva (Baião); tuuluulu (Luv), sp. of edible caterpillar (C. M. N. White 1959, p. 13).

The fact that kauluulu (kahuluhulu) derives from ulula, howl, is common knowledge. People are very fond of demonstrating why the larva is named like that, by shaking the head and making a howling sound—ulu-ulu-ulu ... (huluhulu-hulu ...). Many young persons believe that the caterpillar makes the sound in this way. Old people explain that when the larvae hang at the ends of their threads halfway between canopy and ground and are caught by the wind, they pendulate, and then the sound is produced. But also those who know this real cause of the sound tell the former version as a joke, and like making others believe in it. Even some Nkoya have heard of the howling caterpillar, and say that they have never heard such a stupid thing.

The name limpundiangela is said to be a compound of pundia, jerk away, and ngela, movement. The larva moves, just as mbandama and ñuviñuvi, in such a peculiar way by arching its body, people explain.

There is only one kind of kauluulu, say my informants. No individual types are distinguished. Some persons assert that kauluulu and ñuviñuvi are very closely related, as they are so similar in habitus, others maintain that kauluulu is merely distantly related to both ñuviñuvi and mbandama, as it is the only one to make webs all over the host-tree.

The caterpillar is described as very small and thin. It is speckled or coloured like the bark of the host-tree. If a person gathers ñuviñuvi and kauluulu in the same gourd, nobody will be able to distinguish them, even if kauluulu is perhaps a little bigger, yet not as big as mbandama. The kauluulu does not moult. The pupa is said to be very small and black and found in the ground.

The kauluulu larva is an inhabitant of the dense and dark Cryptosepalum pseudotaxus forest, and its host-tree is the dominant species of this habitat, the tree after which the forest-type is named. Sometimes it is mentioned that the tree in question, C. pseudotaxus, may grow also in the form of a shrub at edges of dambos.

In the hot and damp time (c. October) preceding the real rains, when the foliage of the C. pseudotaxus trees is speckled owing to the fresh, light green leaflets, which contrast to the old, dark green ones, kauluulu appears. It disappears when the rains come.

Kauluulu is distributed in the territories of the Mbunda, Luvale, Lucazi, and

Cokwe in Angola, and in the territory of the Nkoya in Zambia. At Kalundu there are no kauluulu larvae to be found, people say, as its host-tree is too uncommon, but to the west and to the north of Kalundu it occurs. The nearest places where it may be worth while to search for it are localities on the Namalati, on the Nyango, and on the Lukundi.

In certain years there are plenty of kauluulu larvae. They may strip the trees of their leaves over extensive areas then, but mostly there are only scattered big families here and there in the forest. Usually there are about 5 years between two outbreaks, and during these poor years only very few kauluulu larvae are discovered. A great outbreak occurred on the Lukundi in 1962. The larvae defoliated considerable areas. Lesser outbreaks took place on the Nyango and on the Namalati. In 1968 a lesser outbreak occurred on the Lukundi. Also two earlier very good years are remembered, the one in or around 1950, the other about 5 years later. Since 1968 almost no kauluulu had been seen, when I was at Kalundu.

The kauluulu larvae feed in groups on the branches, which they surround with their webs. Wherever a kauluulu goes there is a thread coming out of its anus, which thread is left as a trail behind it. The larvae are active and crawl about all over the tree except during the middle of the day, when most of them rest on the branches. A few, which are hungry, eat even then. When they have finished all the foliage, they leave the tree and creep to another one. It is easy to see where they have gone, as the threads show the way. They are skilful at escaping from birds, which want to take them. They move away quickly in different directions, or let themselves down on their threads. When they are old, they go all together down the tree-trunk, in order to find a place for pupation. Often they go rather far from the tree, perhaps 20 m away, and burrow in the ground, most of them in the same place, close to each other.

Most Mbunda, Nkangala, Lucazi, Luvale and Cokwe eat kauluulu. The Nkoya and Mashasha regard it as inedible. It is mostly collected when it is fully grown or nearly so, either from the tree or from the ground, when it is going to pupate. The pupa is regarded as too small to be worth collecting.

Kauluulu is considered to be very nice, but not comparable with the delicious ñuviñuvi.

People say that it is easy to find kauluulu and describe how one can walk in the forest or along a dambo and suddenly catch sight of a tree covered with webs, glittering in the sun. If somebody discovers such a tree, people will at once think that kauluulu is perhaps abundant this year, and so many will go searching for it.

It is mostly the men of Kalundu, who gather kauluulu as the larvae are to be

found too far away for women and children to go. Otherwise the women and children are as keen on collecting them as the men are. Women and children concentrate upon those groups of larvae which stay on younger trees and on the shrubs, and also upon the larvae which are on or in the ground, ready to pupate. These latter ones can easily be tracked across the moss; one just follows the threads till where they disappear into the ground. The men concentrate upon the larvae which stay in bigger trees.

A collector of kauluulu larvae has to be quick, people say, because when the caterpillars find that you are an enemy, they try to escape, either by hurrying away each one in its direction in the tree or by descending in their threads and then disappearing on the ground. If you try to grasp a kauluulu that is hanging in its thread, it will rapidly sink a little more, and so you will stand there with only web in your hand.

In a great outbreak year people may eat kauluulu several days in succession, if the outbreak is more normal there will be perhaps two proper meals of it. A lucky collector may fill a small gourd (c. 1 l), but then he must find perhaps 3 trees with large families.

The kauluulu caterpillar live in the Luvale country on kakuve, Cryptosepalum maraviense, and is available Nov.–Dec. (C. M. N. White 1959, p. 13). Like the other semi-loopers this caterpillars is by my informants known to disappear with the rains coming in November.

CHAPTER 4

Edible, small, smooth-skinned caterpillars

The lixanjungu genus 1. lixanjungu 2. liungu munienie 3. lixumañangala.

These larvae are distinguished by small size, smooth skin, and longitudinal stripes. The genus is not as homogeneous as the other genera. The members are not considered to be especially closely related, but they are mostly enumerated together. None of the caterpillars is nominated as the leading form. I have chosen to use the name of lixanjungu in designating the genus, as lixanjungu is the most well-known of these larvae.

Three kinds are known to the Mbunda. The Nkoya only know of the first of them. Each one of the kinds probably corresponds to one entomological species. The Mbunda regard all these larvae as edible. The Nkoya eat only the first kind.

Annexed to the end of this chapter I treat liungu mutovo, liungu cimbote, and the larvae of Caeliades libeon and Argema mimosae, which all are smooth caterpillars.

Lixanjungu

Lixanjungu, ma (M, Nk), lixuanjungu, ma (M), lixanxajungu, ma (M), lisandzayungu, ma (L), lilambo, ma (L), sanyungu, va (Luv), zazakole, ma (C), sansakole, ma (C) ririankoko, ma (N) kind of caterpillar.

Host-plants: dambo grasses (Gramineae).

Season: the middle of the rainy season (c. Jan.–Feb.).

I have reared larvae of 20 mm in length, until they were fully grown in cocoon.

Lixanjungu is the most often heard Mbunda term. The majority of my Lucazi informants assert that lilambo is only a descriptive designation and not a correct, traditional name. The Cokwe often say sansakole, but maintain that this form is a Ngangelaism.

Lixuanjungu, lixanjungu (M), lisandzayungu (Ng), sp. of edible caterpillar (Pearson); zazakole (C), an edible caterpillar (MacJannet).

As a rule the Mbunda and Lucazi say that lixanjungu and the allied terms are compounds of cixanja (M), cisandza (L), dambo, and liungu, caterpillar. Some believe that the first part of the compound is instead a derivation from mancanca, dawn. The larva is found at dawn, they explain. Especially the term lixanjungu is sometimes connected with maxa, sorghum. The larva occurs at the time when the sorghum plants begin to form ears. Lixuanjungu may derive from muxua, bundle of grass or corn-sheaf, according to one proposal, but nobody could think of any explanation of such a connection. Lilambo derives from

mulambo, the kind of grass eaten by the larva. The Nkoya say that ririankoko is a compound of ria, eat, and nkoko, the host-grass. Some persons think that the name of this grass is muriankoko and not nkoko.

One kind of lixanjungu is known. According to some people there is more than one kind in Angola, but nobody can give any further information in this subject. It would rather seem that the idea of different kinds is based upon the occurrence of different descriptions of one and the same species.

Lixanjungu has no very close relatives, I am told, but many persons think that it is distantly related to liungu munienie and yet more distantly to lixumañangala. The body of liungu munienie is similar to that of lixanjungu, even if the latter is longer and thinner than the former. Compared with lixumañangala lixanjungu is bigger and fatter.

People describe lixanjungu as rather small and thin—fat compared with e.g. ñuviñuvi, meagre compared with e.g. cimbua. On its body it has black longitudinal stripes against a light skin. The light colour is alternatively described as white, whitish, reddish, red, yellow, green, light green.

It is supposed that lixanjungu grows without moulting. It pupates certainly in the tussocks of grass, say my informants.

Larva, final instar; c. 40 mm long, c. 5 mm broad. Weight c. 0.75 g. Head light yellowish brown with sparse whitish hairs. Thoracic shield and anal flap light yellowish brown. Body light yellowish green with thin, dark brown, longitudinal stripes and small, dark brown dots. Sparse whitish hairs. Dorsum with one median stripe. Lateral area with two lateral thin lines and one stripe running through spiracles.

A greyish tough cocoon of web is made before pupation.

Displayed specimens were as a rule recognized.

Lixanjungu is known as an inhabitant of the dambos, where it lives in areas of low kinds of grass. People say that it feeds on all kinds of low grasses.

The Ngangela and Cokwe say that lixanjungu emerges at the same time as cingoyi, and that it disappears when the bulrush millet ripens. The Nkoya report that it appears when the first maize ripens and disappears when it has been eaten, before the end of the rains.

The caterpillar occurs in the territories of the Ngangela and Cokwe in Angola and of the Nkoya and Lozi in Zambia, but the distribution is local. In many dambos there are no lixanjungu larvae to be found, although the pre-requisites seem to be all right. Most people at Kalundu believe that lixanjungu does not occur in the area. They report that the Shikombwe, a tributary of the Luena, close to Mwene Mutondo, is the nearest local. Another locality mentioned is

Kanyendze on the Luampa river. However some people in eastern Kalundu know that there are lixanjungu larvae in a certain dambo between Kalundu and Mwene Mutondo. The villages, where these informants live, are situated close to this dambo.

It is generally known that the lixanjungu larvae feed at night and in the early morning. They are afraid of the sun, and when it is getting hot (between 7 and 8 o'clock) they creep down into the tussock. They move closer and closer to the bottom the higher the sun rises, and finally they disappear among the stalks, where they sleep until late in the afternoon. When a lixanjungu eats, it climbs a blade making it bend under the weight of its body. Then it bites off the blade so that the top of it falls down. The bigger larvae are accordingly found lower down than the smaller ones. Now the lixanjungu starts to consume the blade from the break downwards till the end, and then it starts again with another one. It does not eat the hard and wiry peduncle, but only the soft blades.

The lixanjungu larvae live in families. The members of a family keep together. Between two families there are tussocks, where no caterpillars are to be found, say my informants.

I noted the first specimens (c. 30 mm long) Jan. 21, the last ones Feb. 27. Unpupated larvae were still found alive in their cocoons in November. It is not probable that there occurs more than one generation in a year.

Most Yauma, Mbunda, Nkangala, Lucazi, Luvale, Cokwe, Lunda (Shinde), Ayisenga, Lukolwe, Nkoya, Mashasha women and children eat lixanjungu. Some men, both young and old ones, eat it sporadically, others do not taste it at all. A lixanjungu should be about 30 mm to be edible, according to my informants. Larvae, which have crept into the soil in order to build cocoons and to pupate, are not eaten, nor are the pupae. They are impossible to find among the grass roots, I am told.

The opinions about the taste of lixanjungu are divided. Men mostly report that it is insipid and sour, and that they do not want to eat such bad food. Those few men who are in a habit of eating it say that it is as nice as any other small caterpillar. Women and children praise it as savoury and almost comparable with liungu munienie.

Women and children gather lixanjungu larvae. Men say that if they find some in passing, they bring them home to the village. People go searching for lixanjungu in the known localities every year. At the time when the larva is expected the women ramble over the dambo to find out if it has yet come. Much perseverance and also a great deal of luck is required for to discover it. There are no good signs to follow. The caterpillars can be almost anywhere in the dambo, and

it is difficult to catch sight of them, as they are very similar to the grass. It is useless to watch for droppings, as these disappear in the grass. The only possibility is to roam through the dambo early in the morning, when the larvae are still feeding, and to try to find them then. The women who live near to a locality, where lixanjungu is to be found, spend many early morning hours in searching. When one has discovered a family of larvae, one can easily collect them. They do not try to hide. As they are stationary, most women pick only the biggest of them, until a meal is collected. If not enough are found in one round, one should search through the area again, because larvae, which were feeding at the bottom of a tussock a few minutes ago, may now have climbed higher up, to a new blade. The local is left in peace for some days, and then one returns to gather those larvae which have grown up in the meantime. Children like to go gathering lixanjungu larvae on their own. They then pick just a few ones and eat them as a snack. Girls are sometimes sent by their mothers to collect for dinner.

One can estimate a catch of a small gourd (c. 0.5 l) after an hour's work of searching and collecting, say my informants from eastern Kalundu. Often several women and children go together, each one of the women getting about the same amount, the children gathering perhaps half that amount. Totally one person can calculate upon 5 small gourds an average good year, upon 2 small gourds a bad year. This means 5–10 meals with lixanjungu larvae a year, I am told.

The collected caterpillars are either squeezed or else dropped into the gourd alive. As it is difficult to squeeze them without wasting the fat, most people prefer to cook them without preparation.

The usual cooking method is boiling. The lixanjungu larvae are eaten fresh the same day they are caught. Marketing is not known.

In the literature there are some statements that may be connected with this caterpillar.

From Kwango it is reported that the Cokwe and Pende eat kambinzu, a kind of small caterpillar, which prefers a certain kind of grass, kaka, but also feeds on many other kinds of grasses. The larva lives in steppes. It is gathered in February–March and in May–June. It is rather common (Leleup & Daems, table facing, p. 6). The same source (p. 20) adds that also the Sonde name this caterpillar kambinzu, and that it lives in treeless savanna. The terms steppe and treeless savanna probably refer to dambos.

Dos Santos (1960, p. 133) mentions masanza a iambu as a Cokwe name for an edible caterpillar. This designation may be a synonym of zazakole (sansakole)

(Cokwe), sanza being a Cokwe term for dambo, iambu being perhaps the same as vulambo, grass.

The Lenje regard the caterpillar misya a nkoko as edible (Torrend, p. 94). The Lamba eat the caterpillar umushyankoko, which according to Doke (1931, p. 101) feeds on sorghum and grass. These two terms are perhaps related to the Nkoya term ririankoko. Yet lixanjungu does not eat sorghum. It is possible that Doke has confused kanguengue and lixanjungu, in mentioning sorghum as a host-plant of the latter one. It is also possible that quite another larva is referred to.

The Tumbuka eat mpherebungu, pale green caterpillars, found in grass and used whole as relish (Turner, pp. 21, 74).

Liungu munienie

Liungu munienie, mongu munienie (M), mbalasanga, vi (M), litete, ma (Nk, L), lintente, ma (Nk, L), linyenye, ma (Luv), tete, ma (C), tetelwa, ma (C), -(N) the caterpillar of a Desmeocraera species (Notodontidae).

Host-tree: Swartzia madagascariensis.

Season: the first part of the rainy season (c. Nov.–Dec.).

The identification is based upon a study of the moth. Larvae (from c. 10 mm) have been reared. Pupa and imago have been obtained.

The Mbunda use the term liungu munienie in colloquial language. The Nkangala and Lucazi and the Cokwe use mostly the term litete respectively tete. Only some Mbunda people have heard the term mbalasanga, and they often think that it is a designation of another kind of caterpillar (liungu mutovo, see below). Lintente and tetelwa are said to be proper Lucazi and Cokwe words, which have, however, lost currency.

Mbalasanga (M), lintente (Ng), sp. of edible caterpillar (Pearson); tetelwa (C), an edible caterpillar (MacJannet).

My informants derive the names, except mbalasanga, which is said to be of unknown origin, from munienie, mutete, the host-tree Swartzia madagascariensis. When I asked about the term muntente, the Lucazi explained that the ancestors invented this peculiar form to avoid confusion with other caterpillars feeding on the same tree.

One kind of liungu munienie is known to exist. No individual types are differentiated. Some persons assert that liungu munienie does not have any relatives at all. Others classify it together with lixanjungu or lixumañangala. Others again maintain that it is related to liungu mutovo. Now and then it is confused with this larva, which is little known.

Liungu munienie is described as small, rather fat, and hairless. Opinions are divided about its colour and pattern. Mostly it is reported to be longitudinally striped. Often it is said to be speckled, sometimes to be transversally striped. As a rule people say that it is two-coloured, but quite a number of persons maintain that it is multi-coloured. The most frequently mentioned colours are white, whitish, red, reddish, and the colour of leaves.

The villagers are convinced that liungu munienie does not moult. The pupa is very small, black, and found in the ground, they report.

Larva, penultimate instar: very similar to final instar.

Larva, final instar: c. 35 mm long, c. 5 mm broad. Weight c. 0.75 g. Head, anal flap, and clasper, legs, prolegs yellowish. Body glabrous, light blue with one subdorsal, one lateral longitudinal, mm-wide, light yellow stripe. Somite 1 dorsally with a pair of opposite black dots; 12th somite sometimes with similar dots, sometimes without. Venter pale blue-green. Before pupation the blue colour becomes rosa; the yellow colour is suffused with pink.

Pupa: c. 20 mm long, black, in a very slight cocoon close to the surface of the soil.

Liungu munienie is said to occur in open habitats as glades, edges of forests, and abandoned cultivations. It is more common in Burkea africana/Erythrophleum africanum forest than in Julbernardia paniculata forest, but is to be found in both on its sole host-plant, the tree Swartzia madagascariensis.

When the real rains start, in the beginning of the ndombo season, liungu munienie appears. It is still there, when cikilakila and likese dig themselves into the ground, but it disappears before lizoto is seen the first time.

This caterpillar occurs in the territories of the Mbunda, Lucazi, Luvale, and Cokwe in Angola, as well as in the territories of the Nkoya and Lunda in Zambia. It is to be found at Kalundu.

My informants say that the liungu munienie larvae mostly live in scattered groups on the host-trees. Certain years, however, they become abundant, and then they may strip the trees of all their leaves. The outbreaks are never as heavy as those of e.g. mbandama or cikilakila, because there are not so many S. madagascariensis trees, and they rarely grow in groves, say my informants. Normally there are some liungu munienie caterpillars to be collected every year. Their numbers do not fluctuate very drastically. People do not remember which years that were especially good years.

The liungu munienie larvae live in large families, people say. The members of such a family keep together on the same branch. The caterpillars like the sun and wait for it till it is strong, and then they creep up from the under-sides of

the leaves, where they have spent the night, and start to feed. If it begins to rain, they take shelter underneath the leaves again.

I obtained the first specimens in the final instar Nov. 17. Up till Dec. 27 I obtained or discovered scattered groups of liungu munienie larvae almost every day, yet towards the end of this period they were fewer, and all fully grown.

Most Mbunda, Nkangala, Lucazi, Luvale, and Cokwe eat liungu munienie. As a principle people eat even very small larvae of this kind, they say, if they only find many enough for a meal (c. a fistful). Actually they will seldom find specimens that are less than c. 25 mm long. Full-grown ones are preferred. They are picked as well from the trees as from the ground. The pupa is considered to be too small to eat.

People say that if liungu munienie were as big and as common as cikilakila, it would be as highly appreciated as this one. Its taste is well comparable with the taste of cikilakila, especially when it is gathered from the ground.

As a rule people do not go searching particularly for liungu munienie, but find it in passing. The host-trees have often outstretched, low branches, and so one can look directly into the foliage. The larvae are active and not too difficult to catch sight of. If one does not discover themselves, one will perhaps see the marks of their feeding on the leaves. My informants report that people do not usually cut down a tree in which they have found liungu munienie. Either they can reach the larvae from the ground, or else they think that it is not worth while. Sometimes it is easy to climb up on the lower branches and to gather caterpillars from there. If there are many larvae beyond reach, the collector will maybe wait till they creep down to pupate in the ground.

Liungu munienie is collected by men, women, and children. A high-yielding tree may give two fistfuls, but half a fistful is said to be the usual catch. It is considered to be normal to get one or two fistfuls during one day's search. A small gourd (c. 0.5 l) of (unsqueezed) caterpillars is an excellent result. 5–10 meals of liungu munienie may be eaten in an average year.

People mostly prefer to not squeeze liungu munienie larvae, in order to avoid waste of fat.

Generally liungu munienie is boiled. It is not preserved, as the catches are never very great. It is not to be found on the market.

Lixumañangala

Lixumañangala, ma (M, Nk), liungu muxenene, mongu muxenene (M), lisenene, ma (Nk, L), lipongopongo, ma (L), sumangala, va (Luv), pongo, ma (C), -(N) kind of caterpillar.

Host-tree: Monotes.
Season: the middle of the rainy season (c. Jan.–Feb.).
Larvae obtained in final instar succeeded in building cocoon but failed to pupate.

Liungu muxenene and lisenene are the most frequently heard names among the Mbunda and the Lucazi, but those, mostly old people, who know of the existence of another kind of caterpillar (liungu cimbote) on the same host-plant, consider them to be incorrect and misleading. They are merely descriptive designations, according to the opinion of these persons, and could as well denote liungu cimbote.

Pongo (C), an edible caterpillar (MacJannet).

Lixumañangala is said to be a compound of xuma, bite, sting, and ñangala, which is usually said to denote the Nkangala (the people). The meaning of the name should thus be Nkangala-biter. Nobody could explain why the larva is named so. Some Mbunda persons maintain that ñangala in this term rather refers to the shrub-belts of forest skirts, and that the caterpillar has got its name because it is in the habit of skeletonizing the leaves in the edges of the forests. The Luvale say that suma in sumangala means bite, but they do not know the significance of the second element of the word. Lipongopongo and pongo are commonly thought to derive from mapongo, bad health. The larva moves as if it was shivering, I am told. Liungu muxenene and lisenene from muxenene, musenene, the host-plant, Monotes.

One kind of lixumañangala is known. No individual types are differentiated. The larva is sometimes regarded as a more distant relative of lixanjungu and liungu munienie. People think that it differs from these two by its leanness and by its trembling movements, but nevertheless it is small and striped like them.

Lixumañangala is described as being very small and thin and as being longitudinally striped. People know that its head is black but do not willingly enter into details in regard to the colours of the stripes. Black and white alternating stripes, is the most common suggestion. The pupa is supposed to be free, small, black and enterred in the ground.

Larva, final instar: c. 30 mm long, c. 4 mm broad. Weight c. 0.3 g. Head black. Thoracic shield, anal flap black with white markings. Somite 11 swollen, red-brown. Body light yellowish green with red stripes and lines. One median dorsal, one lateral dorsal stripe. Spiracles black.

The cocoon is tough.

Displayed lixumañangala larvae were mostly not recognized, but simply called liungu larvae. They were however more often identified in the forest villages of eastern Kalundu than at Mangango.

Lixumañangala lives in open habitats, I am told, especially in abandoned cultivations and at edges of forests, where it feeds on the only known host-plant, Monotes.

The caterpillar is to be found at the same time as cingoyi, during the middle of the rainy season, say my informants.

It is known from the territories of the Ngangela and Cokwe in Angola and of the Lunda and Nkoya in Zambia. Many people believe that it does not occur in Zambia. Most of the inhabitants of the Kalundu region report that it is not to be found in the surroundings. Only the people of a few forest-villages and also some women know of its presence.

Those persons in the Kalundu region who still collect lixumañangala tell me that they find quite a number of larvae every year. In Angola there are sometimes so many lixumañangala caterpillars that they strip all the host-trees of their leaves.

My informants say that the lixumañangala larvae often live in large families. All the numbers of a family stay together on the same branch. They may be found several on the same leaf. Now and then one of them gets nervous and rears up, quickly moving the body in various directions, listening for danger. All the others stop eating, too, and behave in the same way. Suddenly they hasten away to different places, where they listen again, and then they start to eat. This way of life does not promote fatness and nice taste, people comment.

Many Mbunda, Nkangala, and Lucazi say that lixumañangala is traditionally inedible for everybody. Those Mbunda, Nkangala, and Lucazi who say that it is edible agree that it has always been reserved for women and children. The Cokwe say that it is edible for all Cokwe, also for men. Several of those Mbunda persons who told that it is regarded as inedible reported that it can bite, and that this is the reason why it is not eaten. Xuma means bite, they explained, and thus one can learn from the name what can be expected from it. It does not seem improbable that the idea of lixumañangala being inedible is of later date.

In those Ngangela villages where lixumañangala is eaten the men say that it is too small and sour (some persons say sour as a lemon), while the women and children, as well as both men, women, and children among the Cokwe, maintain that it is nice, even if it is perhaps not as nice as lixanjungu. It is not at all sour, they assert. I consider this rumour of sourness exaggerated, but I find the larva insipid.

People mostly find lixumañangala in passing. It is easy to catch sight of it, if one is only interested, as it moves around in a lively manner. During one search a person may find perhaps one or two fistfuls of larvae. About 5 such catches a

year is estimated as an average, and this is sufficient for a couple of meals, I am told. The caterpillars are not squeezed, but they are crushed between the fingers, because otherwise the quick creatures will be very troublesome to carry home. They are boiled, never roasted, and always eaten fresh.

Liungu mutovo

Liungu mutovo, mongu mutovo (M), litovo, ma (M, Nk, L), litowo, ma (Luv), tovo, ma (C), koko, ma (C), kakoto, tu (Lunda (Shinde), Ayisenga), ritobo, ma (N) kind of caterpillar.

Host-tree: Isoberlinia angolensis?

Season: the middle of the rainy season (c. Jan.–Feb.).

I have not seen this caterpillar.

Generally only old people know these terms. A few Mbunda say that mbalasanga is a synonym of liungu mutovo, but those persons who are most familiar with the tradition assert positively that mbalasanga is a name of liungu munienie. Some Nkoya say that they have heard of an inedible or poisonous caterpillar, named ritobo. Whether this term originally belongs to the Nkoya language is uncertain.

Matovo (Luv), sp. of edible caterpillar (C. M. N. White 1959, p. 13).

The names litovo, litowo, tovo, ritobo derive from mutovo, mutowo, mutobo, the host-tree. The origins of the words koko and kakoto are said to be unknown.

One kind of liungu mutovo is known. No individual types are differentiated. People give very conflicting statements about this caterpillar. Some persons say that liungu munienie and liungu mutovo is one and the same larva. Others rest content with saying that liungu munienie is the closest relative of liungu mutovo. They explain that these two larvae are similar in size, pattern and colour. Others again think that liungu mutovo is related to cingoyi, and that they are similar in pattern. A few persons report that liungu mutovo is a member of the semi-looper group, and that it moves just as the other larvae in this group, has the same build of body, but that it is red and black in colour. It is evident that most people know of liungu mutovo only from hearsay. According to the most consistent and recurrent descriptions of liungu mutovo it is a small caterpillar, about as small as ñuviñuvi or liungu munienie. It is either longitudinally striped or ringed. The colours of these stripes or rings are alternatively said to be red and black, white and red, or white, red, and black. People think that liungu mutovo does not moult, and that the very small pupa is found in the ground.

Liungu mutovo is said to be an inhabitant of the mutovo (Isoberlinia angolen-

sis?) forest, feeding upon the tree after which the forest is named. Some people mention Swartzia madagascariensis as a second host-tree, but it seems probable that this idea is based upon a confusion with liungu munienie. Many a person who hardly knows anything of liungu mutovo says that it eats all kinds of leaves.

The season of liungu mutovo falls in the middle of the rainy season, according to what most of the knowledgeable informants say. Sometimes people say that it occurs during the early rainy season or before the real rains begin, that is simultaneously with liungu munienie and ñuviñuvi respectively.

Liungu mutovo is reported to be a caterpillar with a northerly distribution, known from some Ngangela, Cokwe, and Lunda areas in Angola and from the territories of the Lunda and Kaonde in Northwestern Province in Zambia. None of my informants believe that it is to be found at Kalundu, but some of them say that one does not need to go very far to the north to come across it.

In the areas where liungu mutovo exists it becomes very abundant certain years. The larvae strip the trees of their foliage over extensive areas then. There is no special information about the habits of liungu mutovo.

The Lunda (Shinde), Ayisenga, Nkoya, and several Ngangela persons tell me that liungu mutovo is inedible, since it is poisonous. Other Ngangela and also the Cokwe maintain that it is edible but poisonous, if not prepared and cooked in a certain way.

Some of my informants report that one should not collect liungu mutovo until its stomach is empty, that is until it has buried in the ground. Others say that one may gather it from the tree, when it is still feeding, as well. The pupa is not eaten, since it is too small, people say.

All who know of liungu mutovo agree that it is poisonous. The villagers say that if it is not prepared in the right way, it may cause death/leprosy/vomiting/diarrhoea/dizzy fits/ill-feeling. To kill the poison one should either boil the larvae in ash-water more than once, or boil them in plain water 3–6 times, each time with new, fresh water. Those who think that it could be collected as well from the tree as from the ground say that it needs more waters, at least 6 ones, when it is taken from the tree, and only 3 or 4 ones, when its stomach is empty.

If properly prepared liungu mutovo is nice to eat. It seems probable that the larva receives a poison with the leaves of the host-tree.

Liungu mutovo is not preserved and not sold on the market.

The descriptions suggest that this caterpillar is rather common. It is the only edible larva feeding on the mutovo (Isoberlinia angolensis?) tree, according to the information that I have received. This tree, which is pointed out as its host, is dominant or codominant over extensive areas in northern Zambia. The mutovo

forest is said to be as poor of edible caterpillars as the Cryptosepalum pseudotaxus forest.

Litovo (Luvale) is found on mutovo, Lonchocarpus capassa, Feb.–April (C. M. N. White 1959, p. 13). The translation of mutovo needs confirmation (compare below). Several other statements in the literature may be assumed to refer to the larva in question. Thus the Lunda and Cokwe terms kakoto and koko may be related to the Lamba term akakoto, which according to Doke (1931, p. 101) denotes an edible caterpillar on the mutowo tree. And it is probably the same larva Madan (p. 86) refers to, when he says kakokoto is a smooth edible caterpillar, ringed with black and yellow. Trapnell & Clothier (p. 80) have noted mutobo as a Lenje, Lamba, and Kaonde word for Isoberlinia tomentosa (=I. angolensis (F. White, p. 125)). The Bemba call a kind of edible caterpillar citobo (White Fathers, p. 225). This term is probably derived from the name of the host-tree of the larva, which name F. White (p. 442) writes as mutowo; mutowo is according to F. White Isoberlinia angolensis. Whitby (p. 39) says that the Bemba name a kind of caterpillar ifitobo, and that this caterpillar feeds on poisonous vegetable matter, which is intoxicating unless cooked with ash-water. Richards (p. 408) mentions the caterpillar fitolo as one of 6 chief types eaten by the Bemba. It is possible that fitolo is a synonym of, or that it should be written fitobo or citobo. During my stay in Isoka my Namwanga informants told me about an edible caterpillar on the mutowo tree, named citowo. This larva, they say, is poisonous unless it is boiled several times.

Liungu cimbote

Liungu cimbote, mongu cimbote (M) kind of caterpillar.
Host-tree: Monotes.
Season: dry season after the rains (c. April).
I have not seen this caterpillar.

Only a few old Mbunda know of this caterpillar, and even less can name it. Those who remember the name agree that cimbote means frog, but they can not tell why the larva is called frog caterpillar. One man suggested that liungu cimbote and a kind of frog living in trees have similar pattern and colour. Only one kind of liungu cimbote is known to exist. Different opinions concerning the relationship between this larva and other liungu larvae were expressed. A couple of persons maintained that it is related to cikilakila, some reported that it is a member of the likese genus, others asserted that it has no relatives at all. According to the first view it has a tail, according to the second it has the same

body shape as likese, according to the third one it is not similar to any other caterpillar.

Liungu cimbote is described as very big, as big as likese or bigger, as big as a thumb or as a great toe. The skin is said to be smooth and ringed in black and yellow. As already mentioned it is sometimes said to have a tail. Mostly people say this is not true.

None of my informants could give any details about the young caterpillar and the pupa, nor about the habits of the larva.

As the only host Monotes trees are pointed out. Liungu cimbote appears, people say, once a year, when the rains have ceased (c. April), and disappears before the cold time. In Angola liungu cimbote occurs in Mbunda territory, where it lives in small groups of at most 10 caterpillars, mostly of only 2 or 3 ones. My informants say that it is not to be found in Zambia as far as they know. Some persons have, however, heard a rumour that it exists somewhere in the country.

The Mbunda eat liungu cimbote in Angola, I am told. It is highly appreciated, as it lacks thick and leathery skin and is full of fat. The larvae are, however, few, and inconspicuous, and hence difficult to find. Now and then somebody finds a group in passing. The liungu cimbote larvae are roasted and eaten as a snack.

Argema mimosae (Bsd.) (Attacidae)

The caterpillar is green with silvery markings. The cocoon is a silvery netted structure. The species is distributed in East Africa and South Africa and is also known from Rhodesia (Zimbabwe). The larva feeds on Sclerocarya (Pinhey, p. 5).

Junod reports that he in Rikatla (Moçambique) found a boy, who knew that a certain cocoon, found on the branches of the nkanve tree, Sclerocarya caffra, gives birth to a moth, the green queen moth, Argema mimosae (Junod 1927, vol. I, p. 65). The cocoon is used as an ornament in dances (ibid., vol. II, p. 335). In the literature statements about various uses of cocoons in East and South Africa are to be found. Maybe also these statements refer to the cocoons of Argema mimosae. (See chap. 9, vol. 1, cp. p. 139 f.) Junod does not give any information about whether the caterpillar of the green queen moth is eaten or not. Kropf (p. 340) reports from the Xhosa that iqonvo is an edible insect of beautiful green and metallic appearance, like silver, living in mimosa trees. Davis (p. 183) says that iqonya (Xhosa) is a caterpillar found in mimosa bush and having a beautiful metallic appearance. Maybe Kropf and Davis have the larva of Argema mimosae in view.

Caeliades libeon Druce (Hesperiidae)

The caterpillar is c. 30 mm long and striped. It is polyphagious and feeds on various trees, shrubs and lianes of the gallery forests around Kinshasa and Brazzaville. The larva also strips the leaves of Milletia species planted along the streets. The first generation appears in the beginning of the rainy season in October, the second in February. The Africans also know of one generation in December. The second generation is not so abundant as the first. (Dartevelle, p. 12 ff.).

This larva is around Kinshasa one of the most abundant and appreciated kinds. In the market it is the most common caterpillar. All women and children collect the larvae. (Ibid., p. 18 f.)

Adriaens (p. 496) says that the larva of C. libeon is very common and much appreciated by the inhabitants of Kwango. The Pelende (=Yaka) name it mwangu or tunzengededi. Ndolo & Malasi (p. 76) note that the Mbala term -nzeengeledi refers to a kind of edible larva.

CHAPTER 5

Spiny, edible caterpillars

The muyaya genus 1. muyaya 2. lixaxa 3. likaulanzinzi 4. liungu mulolo 5. liziavulo 6. liungu mundemba 7. liungu mucakalala 8. liungu muzilili 9. liungu muncikala 10. (liungu) limpundukaina.

These larvae are distinguished by their spines. Another characteristic is their large size. There is a tendency to split the genus into smaller groups. Thus e.g. liziavulo and liungu mundemba are often classified together. Likaulanzinzi and liungu mulolo are said to be more closely related to each other than to the rest, even if they are also closely akin to muyaya. Muyaya, lixaxa, likaulanzinzi, and liungu mulolo are often enumerated together. I have chosen to name the genus after muyaya, because this larva is the one that is most often mentioned, and it seems to be considered the typical spiny caterpillar.

The Mbunda know of at least seven kinds of spiny, edible caterpillars. Number 7, 8 and 9 may be synonyms. It is very uncertain if there exists at all a (liungu) limpundukaina. The idea of it seems to be based on a confusion. Numbers 1, 3, and 4 are known to the Nkoya. Each one of the ethno-species 1–6 probably corresponds to one entomological species. The Mbunda eat the larvae 1–9. The Nkoya eat the larva 1, 3, and 4.

Gonimbrasia belina, G. zambesina, and Imbrasia (Nudaurelia) cytherea are treated after muyaya.

Bunaea alcinoë and B. caffraria are treated after lixaxa.

Bunaeopsis aurantiaca is treated after likaulanzinzi.

Imbrasia (Nudaurelia) anthina is treated after liziavulo.

Pseudantheraea discrepans I treat at the end of the chapter.

Muyaya

Muyaya, mi (Y, M, Nk), liyaya, ma (M, Nk, L, Luv, C), yaya, ma (C), riyaya, ma (N), riseshe, ma (N) the caterpillar of a Gonimbrasia species—belina Westwood?—(Attacidae).

Host-trees: Julbernardia paniculata, Brachystegia (type longifolia), Erythrophleum africanum, Burkea africana.

Season: before and during the early rainy season (c. Oct.–Nov.).

I have not seen this caterpillar. For the discussion of its identity, see below.

The Mbunda and Nkangala usually say livava, but they maintain that the correct term is muyaya. Also the Cokwe say livava or vava, but a few old persons suspect that there is another, forgotten name, which is the proper Cokwe term. A few Nkoya claim that riseshe is the true name.

Muyaya (M), liyaya (Ng), sp. of edible caterpillar (Pearson); mavaya (Luv), sp. of edible caterpillar (C. M. N. White 1959, p. 13).

Most people say that the meaning of the words muyava etc. is unknown. Some

Mbunda suggest that they are derivations of yayavala, cry with pain. Somebody who gets hurt by the spines when collecting, squeezing, or chewing a muyaya larva will cry, they explain. Riseshe is a derivation from museshe, the host-tree B. africana.

One kind of muyaya is known. All individuals are said to look the same. The muyaya caterpillar is the most well-known of all the spiny caterpillars. Often people refer to it when talking about the others.

People describe muyaya as being of forefinger size. It is not as fat and thick as likese, but of about the same length. It is thicker than liziavulo. The colour is either said to be speckled in black and white or else said to be black with white dots. The white dots are according to the descriptions very small, like fish-scales or like sprinklings of white meal on the sides of a black cooking pot, like sprinklings that can be wiped off, emphasize my informants. Muyaya's spines are short, arranged in rows, and black, say some people, or black with a little red at the top say others. They are small compared with the spines of liziavulo. Some villagers can report that there are sparsely growing white hairs, too, on muyaya's body.

Muyaya undergoes two collective moultings, and it looks pretty much the same during the whole of its life, I am told. The pupa is big, black, and found at finger-depth under the crown of the host-tree.

The talk about fish-scales or grains of meal probably refers to those small, shiny scales, which according to ROUGEOT (p. 119) are characteristic of Gonimbrasia species. It seems likely that muyaya is identical with Gonimbrasia belina Westwood. This species is the most common and widely distributed in Africa (ibid., p. 121). Moreover, the descriptions given by my informants do not deviate in any essential respects from that given of G. belina by ROUGEOT (p. 120).

Muyaya is an inhabitant of Julbernardia paniculata forest, I am told. Most people mention J. paniculata as the only host-tree, but on second thought, they sometimes say that the larva is also to be found on Brachystegia (type longifolia), on Burkea africana, and sparsely on Erythrophleum africanum.

The villagers report that muyaya appears once a year, and that it is to be found during the same time as likese, that is c. Oct.–Nov. A few persons know of a 2nd generation (in c. Feb.) in the Zambezi Valley.

In Angola muyaya occurs in the territories of the Ngangela and Cokwe, in Zambia in the territories of the Lunda and Nkoya. It is, however, unevenly distributed, and in vast areas it is missing. People disagree about whether the larva exists at Kalundu or not. Some persons say that it may be found, but that it is rare, others say that nobody has ever seen it. The nearest good locality is said

to be on the Syowe river and on its tributary Nakayembe to the south of Luampa.

Muyaya lives as a rule in large families of 100 members or more, say my informants. In young trees there are sometimes small groups of only perhaps 5 larvae. The numbers of muyaya are said to fluctuate a great deal. Some years there are outbreaks, and then the caterpillars can strip the trees of their foliage all over large parts of the forests. Other years only solitary families are found.

There is no special information about muyaya's habits.

The Yauma, Mbunda, Nkangala, Lucazi, Luvale, Cokwe, and Mashasha eat muyaya. At Luampa all my Nkoya informants independently of age report that the caterpillar is edible. At Kalundu mainly some young persons maintain that it is inedible for the Nkoya, but old people protest and say that the Nkoya certainly eat it traditionally.

People collect muyaya during its first (i.e. its first known) collective moulting, if only they find many enough for a meal. Between this moulting and the next one it is generally not gathered, since people do not find it worth while to cut a tree for the sake of so small, spiny larvae, or to prepare them. When they moult again, they are considered to be very desirable, since they are now bigger and again do not need squeezing. But after this moulting they are gathered also while feeding, from the tree. The muyaya larvae are further gathered from the ground, when they are ready to pupate.

The pupa is eaten by the Mbunda, Nkangala, Lucazi, Luvale, Cokwe, not by the Nkoya and Mashasha.

Most people classify muyaya as a very popular caterpillar. It is big and fat and delicious, they say; even if it is not as fat as likese, it tastes just the same. Preserved muyaya larvae are much better than preserved likese larvae. And if one gathers moulting larvae or larvae ready to pupate, one will be spared from hurting one's hands in squeezing them. But other persons think that the troublesome spines are a very great disadvantage; if the spines do not hurt one's hands, they will hurt one's mouth and get stuck between one's teeth, and so these informants say that they dislike muyaya.

The muyaya pupa is preferred to the caterpillar by those who eat it.

Men, women, and children collect muyaya. Except in areas where it is very common it is mostly found by likese- or by cikilakila-searchers. Likese and muyaya often occur in the same localities, sometimes even in the same tree.

It is comparatively easy to catch sight of muyaya, because it does not hide as likese does. Moulting groups as well as the heaps of droppings left under the moulting places of muyaya families are also easy to discover.

Nobody, I am told, looks especially for muyaya at Kalundu. However, in 1972 reports were current that there were outbreaks in the area or in more distant places. None of these rumours was confirmed.

Muyaya larvae, which are taken from the tree while feeding, must be prepared. Most people say that they should be squeezed in the usual way in spite of the spines, which make this work painful. Some of my informants tell me that one can cut or break the larvae in halves, and that it is easier to squeeze them then. But if one has the intention to sell them in the market, one should not proceed like that, because people want to buy whole, well prepared larvae.

The caterpillars may either be boiled or roasted. Very scrupulous persons try to scrape off the spines from the cooked larvae, e.g. with a knife. Most people find this too laborious and prefer to bear the pain.

Of the three caterpillars cikilakila, likese, and muyaya the latter is the best one to preserve. It does not become insipid like cikilakila, and its skin does not get leathery like the skin of likese. My informants say that people always used to preserve collected muyaya larvae as soon as they had collected perhaps 40–50 ones or even less. Old people report that in the days of their childhood every household could have a big gourd (c. 5 L) of preserved muyaya caterpillars, at the end of the season.

In Angola muyaya caterpillars were formerly often sold in the local markets or by wandering traders. Nowadays, they are sometimes sold in the market at Kaoma by people from Luampa, but as a rule the sellers prefer to bring larger amounts to the Copper-Belt towns.

Liyaya (Luvale) is available on mutundwa, Brachystegia spiciformis, March–Sept. (C. M. N. White 1959, p. 13). The caterpillar is not to be found on the host tree when it stands defoliated c. May–Sept.

According to information in the literature the larvae of two Gonimbrasia species are eaten, viz. the larvae of G. belina and the larvae of G. zambesina. The distribution of the latter is restricted to East and South Africa (Pinhey, p. 10), while the former is distributed over the greater part of Africa except the rainforest (Rougeot, p. 121).

Gonimbrasia belina Westwood (Attacidae)

Quin describes the larva of G. belina as big, c. 90 mm long and c. 10 mm wide, weight 5.8 g. It is spiny, orange and black. The host-trees are Copaifera (=Colophospermum, F. White, p. 121) mopane Kirki, Sclerocarya caffra Sond., Burkea africana Hook. Only in C. mopane areas it is so common that bulk-dry-

ing is possible. This host-tree does not occur in Pedi country (in the Transvaal). The Pedi name of the larva is notoleetsana. The Pedi name of B. africana is monoto. (QUIN, p. 109). It would seem that the larva is called after this latter host-tree. If this is so it is an indication that the Pedi mainly associate it with B. africana.

QUIN continues to say that the Pedi know of only one generation, but that there are two or even three generations in the Limpopo area, when the winter rains are good. The first of these generations appears with the first rains of the spring, the second comes in March (QUIN, p. 109). The Limpopo area is a lowland region. PALMER & PITMAN (p. 173) state that C. mopane is in the Transvaal principally distributed to the north of Zoutpansberg.

QUIN (1959) says that in latter years a fairly extensive trade exists with the larvae of G. belina, and that they are sold under the name of masonjas or masotjas, but also known as mopanie-worms (QUIN, p. 109). (Cp. WESSMANN 1908 below.)

SMIT (p. 229) reports that the mopani worm—the larva of G. belina—sometimes is abundant on the mopani trees in the northern Transvaal, where the inhabitants collect the caterpillars in large numbers for food.

PALGRAVE (p. 103) describes the mopane worm as a hairless black caterpillar, about 3.5 inches long with white and orange stipples.

Already LIVINGSTONE (1857, p. 164) reported that a large caterpillar, lopane, feeding on the leaves of mopane, was eaten by the Tswana. QUIN (p. 114) believes that this refers to the mopani worm, which still today plays a significant role in the dietary of the Tswana. Also BROWN (p. 158) mentions a large, edible caterpillar on mopane, and says that the Tswana call it lopane.

STAYT reports that the Venda, another Suthu group, consume a fat, hairy variety of caterpillar, the mashonzhe, which is prepared by burning off the prickles. When the grub is plentiful, parties go out collecting it. These parties leave patches of charcoal dotted over the bush, where they have been removing the prickles (STAYT, p. 46 f.). It is possible that this information refers to the larva of G. belina. The Venda territory is situated to the north of the Pedi area, and C. mopane is probably common there. WESSMANN reports that the Venda regard termites as a delicacy, but that the most popular food is a kind of large caterpillar, which is collected from trees, dried, and sold by wandering traders. These caterpillars are in great demand. Many Venda people can only obtain them through purchase (WESSMANN, p. 26 f.). Perhaps also this description refers to the larva of G. belina.

The Venda term given by STAYT, mashonzhe, shows great resemblance with

the terms masonjas and masotjas, which according to QUIN (see above) are commercial designations for the larvae of G. belina. The application of these terms remains, however, obscure. Perhaps they are used for all spiny caterpillars sold on the market, independently of kind, or for all edible caterpillars, if there are more than one kind, that have C. mopane as their host-tree. In the markets in Lusaka the traders said that they sell only one kind of caterpillar, masonja. This name was then used for all kinds of caterpillars that were to be found there. The larvae come from the south (Southern Province) or from the east (Malawi, Moçambique), I was told. The sellers were often Shona people. The majority of these caterpillars offered for sale in March–April in the Lusaka markets were, as far as I could establish, of the Gonimbrasia genus.

DUNCAN (p. 103) says that the Shona eat mashonjwa. According to HANNAN (p. 575) shonzwa is a Zezuru term, referring to a large Saturnid larva, edible caterpillar. BIEHLER (p. 64) reports that shongwa (Zezuru) refers to a black, spiny caterpillar on the small mufenje (=Cussonia spicata (BIEHLER, p. 326). According to PALGRAVE (p. 33) mushonjwa is the Zezuru term for Cussonia kirkii. Cussonia is host of the spiny caterpillar Bunaea caffraria (see the section about lixaxa).

Perhaps one or more of these statements have reference to the larva of G. belina.

F. WHITE (p. 121) informs us that in Zambia C. mopane is a tree characteristic for hot lowland areas, where it usually is gregarious and dominant, covering vast regions in the Zambezi and Luangwa valleys.

THOMSON reports about a kind of caterpillar, which the Lala in Northern Province, Zambia, call mumpa. Mumpa and ifinkubala (probably the larva of Gynanisa maja, see likese) are the two largest of the caterpillars, and are found at the same season of the year. Mumpa is black with yellow and white spots and black spines, according to THOMSON's description, and has several different types of trees as its host-plants (THOMSON, p. 33). The term mumpa appears in other dialects closely related to the Lala. The Lala, Lamba, and Bisa name an edible caterpillar mumpa (MADAN, p. 36). The Lamba eat the caterpillar mumpa, living on the umutondo tree (DOKE 1931, p. 101). Umutondo is Julbernardia paniculata (F. WHITE, p. 443). The Bemba also eat mumpa, which is said to be one of the six chief types used as food (RICHARDS, p. 408). At Chinsali and Isoka I was told by Bemba, Bisa, Mambwe, and Namwanga people that they eat a big, spiny caterpillar, named mumpa, and that this mumpa is found at the same time as icinkubala (see likese), at the beginning of the rainy season. Mutondo was the most often mentioned host-tree, but also mpasa (=Julbernardia globiflora (F. WHITE, p. 441)) and mombo were pointed out.

The fact that mumpa is said to occur in the beginning of the rainy season, at the same time as likese, and the fact that Julbernardia paniculata is together with some other trees pointed out as its host speaks in favour of the hypothesis that mumpa is identic with the larva of G. belina and/or with muyaya. THOMSON's description of mumpa seems to be applicable only to the larva of a Gonimbrasia species.

Gonimbrasia zambesina (Walk.) (Attacidae)

The adult caterpillar is c. 80 mm long and spiny. The black body is covered with lustrous golden and silvery scales. Two generations occur. Peak in March (WYNIGER, p. 245). Host-plants are mango (Mangifera) and Poinciana. The species is distributed in Southern and Eastern Africa (PINHEY, p. 10).

The Thonga eat the larva of Gonimbrasia zambesina, living on the nhlangula bush (JUNOD 1927, vol. II, p. 81).

Imbrasia (Nudaurelia) cytherea (Fab.) (Attacidae)

The fully grown caterpillar is provided with short spines and spangles. Adult it is c. 125 mm long and c. 20 mm broad (SMIT, p. 227). Host-plants are Rhus, Protea, Eucalyptus, Pinus (ibid., p. 226), Acacia, Euclea (PINHEY, p. 14). By attacking the introduced species of pines, Pinus patula and P. insignis, planted over vast areas of the Republic of South Africa, the caterpillar has become a serious enemy of forestry. It is controlled by spraying endrin from aeroplanes, because hand picking is too expensive (SMIT, p. 226 ff.). The distribution of the caterpillar is restricted to Southern Africa (PINHEY, p. 14). The final instar is found about November. One generation appears (SMIT, p. 227).

SMIT (p. 229) reports from South Africa that the Africans collect this caterpillar in large numbers.

Lixaxa

Lixaxa, ma (M, Nk), lisasa, ma (L, Luv), sasa, ma (C), sase, ma (C), -(N) the caterpillar of a Bunaea species (Attacidae).
Host-tree: Swartzia madagascariensis.
Season: the second part of the rainy season (c. February).
I have not seen this caterpillar.

Lixaxa (M), lisasa (Ng), sp. of edible caterpillar (PEARSON).

People mostly say that the terms are derivations of xaxa (sasa), be sour. The caterpillar is very sour, they explain. It is also often said that the terms are derived from the words for the host-tree muxexe (musese), Burkea africana (see below). The vowel change is explained as a way to separate this larva from other kinds of caterpillars feeding on the same tree muxexe. Some persons suggest

that xaxa means be fermented, contain alcohol, and that in Angola, when people ate this caterpillar, they used to get drunk. Others maintain that nobody knows the meaning of the terms. Dos Santos (1960, p. 214) gives the term musasa (C), Cussonia angolensis (?). None of my informants had heard of any tree named muxaxa or musasa. Bunaea larvae are known to feed on trees of the genus Cussonia (Pinhey, p. 6).

One kind of lixaxa is known. As a rule no individual varieties are differentiated, but sometimes one black variety and one reddish are mentioned.

Lixaxa is often confused with lixexe, probably because of the similarity between the names. Many persons say that it is related to muyaya, but it is stressed that lixaxa has a very special look.

Most people have heard of lixaxa, but as it occurs only in Angola, the opinions about its appearance are divided. My informants agree that it is big, much bigger than muyaya and even much bigger and fatter than likese. Its colour is black. The spines are very long, hairless, and white. Some persons know that the first spines are black.

Lixaxa moults collectively, I am told, and does not change much from instar to instar. The pupa is very big, black, and found in the soil.

The fact that this caterpillar is said to be bigger than likese, with very big spines (even bigger than those of liziavulo, according to what my informants say), of which the first ones are black, while the others are white, indicate that the larva belongs to the genus Bunaea. Two Bunaea species with caterpillars of similar appearance may come into question, B. caffraria Stoll. and B. alcinoë Stoll. The former is according to Rougeot (p. 130) seemingly restricted in its distribution to South Africa, the latter is according to Rougeot (p. 132) widely distributed from West to South Africa. Thus lixaxa may be Bunaea alcinoë. Rougeot (p. 132) reports that a fully grown larva of this species is 120–130 mm long with spines of the first somites black and the other spines white (see further below).

People report that lixaxa lives in various types of forest, where Swartzia madagascariensis grows in profusion, especially at edges of forest, in glades and in abandoned cultivations, i.e. in open habitats. The most frequently pointed out host-tree is S. madagascariensis. Other trees mentioned are Julbernardia paniculata, Brachystegia type longifolia, Burkea africana, Erythrophleum africanum, but as the caterpillar is little known these statements are somewhat uncertain.

The lixaxa larvae appear once a year and are found at the same time as cingoyi (c. February).

Lixaxa occurs here and there in the territories of the Mbunda, Lucazi, Luvale,

and Cokwe in Angola, say my informants. Especially in the south it is missing in vast areas. In the north it is more evenly distributed. According to people at Kalundu it is not to be found in Zambia.

In the regions where lixaxa occurs it is found every year, often in large families with more than 100 members, but mostly in smaller groups. The numbers of the larvae fluctuate, but there are no outbreak years, people report. Nevertheless it happens that lixaxa caterpillars strip the trees of their foliage, even if they are rather few, because they have an enormous appetite. Sometimes lixaxa and cingoyi live in the same S. madagascariensis tree, the one kind of larvae occupying one part of the crown, the other kind keeping to another part.

Most Mbunda, Nkangala, Lucazi, Luvale, and Cokwe eat lixaxa. The caterpillars may be eaten from the penultimate moulting, but people eat them regularly only after the last moulting and until when they are ready to pupate. They are then gathered from the tree, while they are still feeding, as well as from the moulting collective and from the ground.

The Mbunda, Nkangala, Lucazi, Luvale, and Cokwe eat the pupa.

Lixaxa is reported to be delicious thanks to its body-fat and nice taste, although the spines are too big. People prefer to collect it when it is moulting, or when it is ready to pupate. The pupa is yet more highly appreciated than the caterpillar.

Men, women, and children collect lixaxa. As a rule people do not search especially for it, but find it in passing. My informants say that it is very easy to catch sight of the caterpillars, because they are moving about and eating all the time, without becoming afraid when people come nearby. A lucky person, who finds a place rich in lixaxa larvae, may fill a calebass with the caterpillars, but usually much less is found. Once or twice a season the whole village may eat lixaxa, and yet sometimes each person may discover and eat for him- or herself just a few larvae as a snack.

People dislike squeezing the lixaxa larvae, because of their spines. Generally the caterpillars are roasted. The spines are burnt off by the embers. It is too troublesome to boil them and then try to scrape off the spines, people say. The larvae are not preserved, because they are needed at this time of the year, when there is shortage of relish. Marketing is not known.

The hearsay that people in Angola used to boil the caterpillar and eat it and get drunk is probably based upon a misunderstanding of the etymology of the name lixaxa.

Bunaea alcinoë Stoll. (Attacidae)

Rougeot describes one form of the larva from South Cameroon, Gabon, and Congo. This form is brown-red. Another form known from other areas of Africa is black. Host-plants are Terminalia catappa, which borders the streets in the towns, and numerous bush plants (Rougeot, p. 132). Pinhey (p. 6) mentions Cussonia, Ekebergia. The larvae live in big colonies (Rougeot, p. 132). The pupa is 54–65 mm long.

Villagers in Gabon often eat the larvae roasted (ibid., p. 133).

Bunaea caffraria Stoll. (Attacidae)

This larva differs from the brown-red B. alcinoë larva by its black colour (Rougeot, p. 132). The species is distributed in Southern Africa (ibid., p. 130).

The Ronga eat the larva of Anthoaera (=Bunaea (Junod 1927, vol. II, p. 81), caffraria (Junod 1898, p. 201). The Thonga eat the larva of B. caffraria living on nyamari (Junod 1927, vol. II, p. 81). Both reports originate from Moçambique. In Tanzania people living in the Matengo mountains eat the larvae of B. caffraria. The caterpillars are gathered when fully grown in great amounts and prepared by roasting (Harris, p. 46).

Another statement which may refer to this larva is given by mcj (1963, p. 144), reporting that the Nyanja in Moçambique call big spiny caterpillars mbwabwa and that these mbwabwa live on a tree called m'bwabwa. According to Palgrave (p. 33) people in South Malawi name Cussonia kirkii mbwabwa. The Shona eat mashonjwa (Duncan, p. 103). Palgrave (p. 33) reports that mushonjwa is the Zezuru name for Cussonia kirkii. (Compare the section about Gonimbrasia belina, above.)

Likaulanzinzi

Likaulanzinzi, ma (M), likaulandzindzi, ma (Nk, L), likaula, ma (Luv), ciliaula, vi (Luv), kaulansinsi, ma (C), kaulanjinji, ma (C), hele, ma (C), ribakanzinzi, ma (N) the caterpillar of a Bunaeopsis? species (Attacidae).

Host-plant: Hyparrhenia (Gramineae).

Season: the second part of the rainy season (c. Feb.–March).

I have seen a caterpillar reported to belong to this kind.

The Cokwe mostly use terms akin to the Ngangela words, but some people know that there exists a proper Cokwe term, which they have, however, forgotten. A few persons say that the sought Cokwe word is hele.

Likaulanzinzi (Ng), sp. of edible caterpillar, lihele (Niemba), sp. of edible larva (Pearson).

Most people say that the origin of the term likaulanzinzi and its allies is

unknown. Some persons maintain that the second part, nzinzi, etc., is the word for fly (the common house-fly is called nzinzi (M), ndzindzi (Nk, L), jiji (C), nzinzi (N)). Others assert that nzinzi etc. are derivations from the terms nzimbo (M), ndzimbo (L), which denote the season c. Jan.–Feb., when this caterpillar occurs. The Nkoya suggest that ribaka is a derivation from kubaka, shed skin. Hele is said to derive from muhele, the host-plant of the larva.

One kind of likaulanzinzi is known. There are no individual varieties, people report. The larva is said to be closely related to liungu mulolo. They are very similar in appearance and live together, I am told. Sometimes it is maintained that they are of the same kind. Old people as well as others, who are familiar with the tradition, deny this. The second closest relative of likaulanzinzi is muyaya, say my informants.

Likaulanzinzi is described as being as big as a thumb with rows of black spines. Some persons say that the spines are red-tipped. The colour is said to be white/whitish/like the colour of grass.

The larva is reported to have the same appearance throughout its life and to moult once. All the members of a likaulanzinzi family moult at the same time. When the larva feels that the skin is going to burst, it moves half way up the nearest straw, and remains there motionless. The pupa is said to be big, black, and buried in the ground.

Obtained, young larva, pointed out as a likaulanzinzi: c. 35 mm long, c. 7 mm broad. Hemispheres light brown, broadly bordered by black. Clypeus light brown. Body light green. Thoracic shield yellow, anterior median border black, split in two halves by yellow stripe. Anal flap yellow, outer borders black with a median pair of black spots. Dorsum with two rows of c. 3 mm long, black spines. Three lateral rows of c. 2 mm long black spines, one over spiracles, two under. The spines of the lowest row truncated, with setae. Somite 1 with two lateral reduced spines, Spiracles red.

Displayed larvae of this kind were not recognized.

People report that likaulanzinzi is found in dambos, along central watercourses, often at edges of dambos, where Hyparrhenia grass (c. 1.5 m high) is growing. This grass is pointed out as the larva's host-plant. Many people also point out Annona stenophylla, a shrub which is frequently found together with the grass in question.

According to Rougeot (p. 123) larvae of the genus Bunaeopsis are characterized by spines and by feeding upon Hyparrhenia grass.

The larva appears once a year during the latter part of the rainy season, and disappears before the end of the rains.

I received a small group of larvae Jan. 27. The finder told that he had gathered them on the Lukundi river, and pointed out a certain kind of Hyparrhenia grass as their host. The caterpillars did, however, not eat this grass, when I put them upon a tussock of it. Neither did they accept leaves of Annona stenophylla. Perhaps they were not likaulanzinzi larvae at all. Perhaps they needed another kind of Hyparrhenia.

In Angola likaulanzinzi occurs in the territories of the Ngangela and Cokwe, in Zambia in the territories of the Lunda and Nkoya, say my informants. Here and there it is missing, other places are known as especially good localities. Thus there are plenty of likaulanzinzi larvae on the Kuando river in Angola, and also in the upper Zambezi Valley grasslands, populated by the Lozi, people report. Most of my informants assert that there are no caterpillars of this kind at Kalundu, but some said e.g. that they had heard of others who had found likaulanzinzi in the region.

The likaulanzinzi larvae live in scattered groups of up to 100 members or more. Sometimes but very rarely, perhaps a couple of times during one's lifetime, I am told, there are outbreaks, when the larvae devour the grass over large parts of the dambo.

People say that likaulanzinzi is very restless. The members of the family creep together from tussock to tussock. If they are numerous they scatter in smaller groups. Likaulanzinzi proceeds just like lixanjungu, when it feeds. It climbs a blade, until it bends, bites off the top, and consumes the rest of it downwards to the base. The straw is too hard, and so it is not eaten. When the larvae have moulted (see above), one can see the old, empty skins fastened to the stalks. If the likaulanzinzi family is large, it leaves bare tussocks with nothing but stalks, empty larval skins, and lots of droppings.

The Mbunda, Nkangala, Lucazi, Luvale, Cokwe, Lunda (Shinde), Ayisenga, Nkoya, Mashasha eat likaulanzinzi. It is collected while moulting, and then when it is feeding on the grass, as well as when it is ready to pupate. Before the last moulting it is considered to be too small.

The pupa is eaten by the Mbunda, Nkangala, Lucazi, Luvale, and Cokwe.

People regard likaulanzinzi as nice, well comparable with muyaya. The non-feeding stages are preferred.

Men, women, and children gather likaulanzinzi. People go out searching for it, where there are good localities. At Kalundu it happens occasionally that a hunter comes home with this kind of larvae from the Lukundi. Except when there is an outbreak they are not easy to catch sight of, as they are protectively coloured and live close to the ground. Mostly they are discovered thanks to the

empty skins fastened halfway up the straws and rattling in the wind. If one is lucky one will come across the caterpillars just when they are moulting—they are more conspicuous then, and easy to gather. To find the larvae or the pupae in the ground is considered to be very difficult, since they disappear among the grass-roots. In an outbreak year it is, however, worth while to search for them and to dig them up.

Only in two villages at Kalundu the inhabitants reported that some years some of their hunters may come home with so many likaulanzinzi larvae that there will be a meal for everybody.

Likaulanzinzi is cooked like muyaya. Preservation is said to be very uncommon, and the same is true of marketing.

Bunaeopsis aurantiaca Rothschild (Attacidae)

The adult larva is c. 100 mm long. It is green-blue with black spines. Each somite is surrounded with a red median band (Rougeot, p. 130).

This larva is eaten and named mbula by the Pende (Leleup & Daems, table facing p. 6), kunga by the Sonde and Cokwe (ibid., p. 20). In Kwango the host is a low, very common, suffruticose plant, called mukia by the Pende and mutongo by the Cokwe (ibid., p. 12). In Gabon the species lives on high grass (Rougeot, p. 130). According to Leleup & Daems the larva is rather common in steppes (that is probably dambos) in Kwango. It is collected in October (Leleup & Daems, table facing p. 6). In certain areas of Kwango this caterpillar was of great importance as food. The surplus was dried and sold. However, the Belgian administration changed the time for the traditional grass burning, causing the larva to become so rare that people gave up collecting it. When the time for burning was again changed, the numbers increased. (Ibid., p. 12.) (See chap. 7, vol. 1.)

Liungu mulolo

Liungu mulolo, mongu mulolo (M), lilolo, ma (Nk, L, Luv), lolo, ma (C), riroro, ma (N) kind of caterpillar.

Host-plant: Annona stenophylla.

Season: end of rainy season (c. Feb.–March).

I have seen a caterpillar said to belong to this kind.

The term liungu mulolo is often said to be a synonym of the term likaulanzinzi (see above). Mulolo, muroro is Annona stenophylla.

One kind of liungu mulolo is known. There are no individual varieties, people say. Its closest relative is said to be likaulanzinzi, to which it is very similar in appearance, being of the same size and colour, being spiny, and living in the

same type of places as this larva. Both larvae are known primarily by old people. Those who are not very well acquainted with them sometimes say that they are one and the same caterpillar.

Liungu mulolo is described as being of thumb size and coloured like the leaves on which it feeds. It has many black spines.

People say that the caterpillar has a similar appearance all through its life and that it moults once or twice, each larva in the place where it happens to stay, when the moment comes. The pupa is said to be big and black. Most people report that it is found in the soil under the host-plants. A few Ngangela and Cokwe persons say that this is wrong and that the pupa is surrounded by a cocoon, which is hidden among the leaves of Annona stenophylla.

I have observed three instars of a larva pointed out to be liungu mulolo. In the first instar this larva is c. 30 mm long, c. 5 mm broad, with light green body and black spines, the points of which are divergent. In the second stage it is c. 40 mm long, c. 10 mm broad, with light green body and red, black-tipped spines, the points of which are divergent. In the beginning of the third instar the larva is c. 55 mm long and c. 10 mm broad. Head black. Body light green, after some days changing into dirty brownish. Thoracic shield black with anterior broad yellowish border. Anal flap with black mm-broad outer borders. Basal median part yellowish. Spiracles black. Spines black with a reddish tinge. Dorsum with two rows of c. 4 mm long spines. Somite 11 with one median fused big spine. Lateral part with three rows, one with c. 3 mm long spines over spiracles, one with c. 2 mm long spines under the spiracles, and one yet lower with c. 1 mm long truncated spines with setae.

When c. 50 mm long larvae of this kind were displayed in the villages, they were as a rule not recognized but simply called liungu larvae. Only three Ngangela women identified them as liungu mulolo larvae. Some persons took them for likaulanzinzi larvae. Others said that this was certainly wrong. The two earlier stages were not recognized at all.

Liungu mulolo lives at forest skirts and in other open habitats, where the shrub Annona stenophylla grows in profusion, often constituting a border community towards the dambo together with Hyparrhenia grass. Everybody who knows of liungu mulolo also knows that it eats the leaves of mulolo, i.e. of Annona stenophylla. Some persons pointing out Hyparrhenia grass as a second host-plant, may be considering likaulanzinzi.

When the fruits of A. stenophylla are ripe and may be collected, liungu mulolo appears, too, and so people traditionally gather fruits and larvae at the same time.

The territories of the Ngangela and Cokwe in Angola, of the Nkoya in Zambia are reported to belong to the range of liungu mulolo. The caterpillar is according to some persons present at Kalundu, according to others it is missing. People say that liungu mulolo lives in small families of c. 10–20 members, and that outbreaks never occur.

I obtained a small group of caterpillars, said to be liungu mulolo larvae, Jan. 20. They were c. 20 mm long. After two moultings they were c. 50 mm on the 8th of February. Other caterpillars which I got obviously developed into the same stage. My larvae fed upon A. stenophylla, but they did not touch Hyparrhenia grass, that was offered to them. They did never pupate.

Some Mbunda, Nkangala, Lucazi, Luvale, Cokwe, Nkoya, and Mashasha know that liungu mulolo is traditionally edible, and that it may be gathered when it is c. 50 mm or more. The pupa is reported to be sporadically eaten by the Mbunda, Nkangala, Lucazi, and Cokwe. It is as all pupae regarded as inedible by the Nkoya and Mashasha.

My informants say that liungu mulolo is one of the less appreciated caterpillars. There is never more than some few larvae to get, and they have long, sharp, troublesome spines, it is explained. But the moulting caterpillar as well as the caterpillar that is ready to pupate is nice.

In the olden days particularly women and children gathered liungu mulolo in the neighbourhood of the villages, people relate. As a rule the larvae were discovered by people who went up to a shrub to collect the edible fruits of A. stenophylla. From close quarters the caterpillars are easy to see, because they are not afraid, and they move along the edge of the leaf, while they are eating. One can leave not full-grown larvae alone—even if they change shrub, they will easily be found again, when they have grown up properly.

Most people at Kalundu do not eat liungu mulolo nowadays. Only in two villages the inhabitants told me that they know without doubt that there are liungu mulolo larvae to be collected in the region, and that they generally find some every year. One or two fistfuls is the average catch for one woman in one year, the villagers reported. In the neighbourhood of these villages I found very few ripe A. stenophylla fruits, while there were plenty of them around most other villages. Obviously those who have given up eating the fruits have also lost interest in the larvae and often even come to believe that they do not occur at Kalundu.

As a rule a catch of liungu mulolo is not enough for a proper meal, and so the larvae are mostly roasted and eaten as a snack. Liungu mulolo is not preserved, nor is it sold on the market.

Liziavulo

Liziavulo, ma (M, Nk), litsiavulo, ma (L), liniamakulivozi, ma (L), lijiavulo, ma (Luv), shiaulo, ma (C), kenge, ma (C), lishende, ma (Lukolwe), -(N) the caterpillar of Imbrasia (Nudaurelia) dione Fabricius (Attacidae).

Host-plants: Combretum, Pterocarpus angolensis, Brachystegia (type longifolia).

Season: the middle of the rainy season (c. Jan.–Feb.).

The identification is based on a study of the moth. Larvae of the final instar (from a length of c. 60 mm) have been reared. Pupa and imago have been obtained.

Some Lucazi people maintain that litsiavulo is a loan from the Mbunda. In the same way some Cokwe state that shiaulo is a Ngangelaism.

Liniamakulivozi, litsiavulo (Ng), sp. of edible caterpillar (Pearson); makenge (Luv), sp. of edible caterpillar (C. M. N. White 1959, p. 13).

The Mbunda say that liziavulo is a compound of mazi, fat, and vulo. The larva is fat (even if not very fat), or it is shining as if it were smeared with oil, people explain. But opinions differ as to the meaning of vulo. Some of my informants assert that vulo is an abbreviation of vulova, black mud, or of vulongo, black bees' wax. Others connect it with uluka, to moult, and explain that people prefer to eat the moulting liziavulo. The Lucazi say that the caterpillar is named liniamakulivozi, because it is to be found during the kuvozi season of the year (c. Jan.–Feb.). Niama means meat. Kenge and lishende derive from mukenge and mushende, the host-tree Combretum.

Only one kind of liziavulo is known to exist, and there are no varieties within the kind. As its closest relative liungu mundemba is mentioned. Both have hairs on their spines, people say. Liungu mundemba and liziavulo are mostly enumerated together, and kept somewhat separate from the other spiny caterpillars. One could perhaps refer to one liziavulo group and one muyaya group within the muyaya genus. Liziavulo is well-known. People sometimes refer to it when talking about some other spiny larva. It is held apart from the larvae in the muyaya group (i.e. from other spiny larvae except liungu mundemba) by its very big spines with hairs, and from liungu mundemba by its black colour and sharp spines.

Liziavulo is said to be big as a forefinger and black with many very big and sharp spines, arranged in rows. They are said to be light, either white, whitish or else pointed out as yellow. Each spine is provided with hairs of the same colour. Some people have observed that liziavulo's stomach is of a light colour—white, whitish, or green.

My informants say that liziavulo undergoes collective moulting twice. Most people believe that the larva looks the same all through its life, but some report that it is of variegated black and white colour before the last moulting.

The pupa is known to be big, black, and found at finger-depth at the foot of the host-tree.

Larva, final instar (full-grown): c. 90 mm long, c. 15 mm broad. Weight c. 6 g. Head black. Body, thoracic shield, anal flap black. Spines yellowish with brown tips. Half way towards the point of the spine some yellowish c. 2 mm long radiating bristles.

Spines arranged in rows. Dorsum with two rows of c. 4 mm long spines, except those on somites 1–3, which are c. 6 mm. Lateral area with one row over spiracles, two rows below. The lowest of these rows with c. 1 mm long spines having divergent points, the other two rows with c. 3 mm long spines. Spiracles silvery white. Venter green, turning brownish when the larva is ready to pupate.

The pupa is c. 40 mm long, black, slightly enterred. Weight c. 3 g.

Every Ngangela and Cokwe but no Nkoya person in the villages recognized displayed liziavulo larvae.

The only distinct difference from the larva as described by Rougeot (p. 112) in Gabon, is that my specimens have spines with brown tips, while those studied by Rougeot have yellow spines. From East Africa Pinhey (p. 13) describes the larva as black with yellow-tipped spines and sparse short hairs.

Liziavulo is an inhabitant of most forest types, where its host-trees Combretum, Pterocarpus angolensis, Brachystegia (type longifolia) grow, and, according to a few persons also Diplorhynchus condylocarpon. People say that the larva most often is found on Combretum in open woodland, forest edges and abandoned cultivations.

It is well-known that liziavulo only comes once a year, when the bulrush millet forms ears during the kuvozi season (c. Jan.–Feb.), simultaneously with cingovi. The larva disappears before the end of the rainy season.

My informants report that liziavulo occurs throughout the areas of the Mbunda, Lucazi, Luvale, and Cokwe in Angola, and also in the areas of the Lunda and Nkoya in Zambia. It is said to be rather common on the whole, but nobody knows of any good localities at Kalundu.

The numbers of liziavulo fluctuate from year to year, but there are always some caterpillars of the kind to collect. Some years there are more of them, some years less. Small groups of 10 or perhaps 50 members are most common, but sometimes as many as 100 larvae may be found together. No outbreaks are known, and people do not remember which years that have been the best.

There is no special information about liziavulo's habits.

I obtained a small group of larvae from Combretum Feb. 3. They accepted the leaves of P. angolensis. Pupal stage lasted c. 3 weeks.

Most Mbunda, Nkangala, Lucazi, Luvale, Cokwe eat liziavulo. The Nkoya and Mashasha regard it as inedible. Some Lukolwe say that this caterpillar is traditionally edible for them. Others maintain that it is not. All Nkoya agree that there is no edible caterpillar on the tree Combretum nor on Pterocarpus angolensis, and no Nkoya person recognized the displayed liziavulo larvae.

Those who eat liziavulo say that one may eat it from the penultimate moulting, but that as a rule people gather it first during the last one or later, when it is feeding in the tree or when it is ready to pupate.

The pupa is eaten by the Mbunda, Nkangala, Lucazi, Luvale, Cokwe.

Liziavulo is not very popular as food. The big and sharp spines are difficult to remove altogether. When one chews the larva the spines will prick the inside of the mouth and cause bleeding. Moreover, it is not especially fat compared with e.g. muyaya, but yet it tastes nicely. If it were not for the spines, people would like it, say my informants. It is, just as other spiny caterpillars, regarded as best when taken from the moulting collective or from the ground, as it does then not need preparation. The pupa is rated higher than the larva. It is very delicious, I am told.

People seldom search especially for liziavulo, they say, since they discover these larvae nevertheless. The liziavulo caterpillars move about all the time and are not afraid of people. When a larger group is found, many a person will wait till its members have pupated, and collect them then. If a discovered group is smaller, the larvae will probably be gathered at once, because a too great part of them will get lost if one waits, people explain.

Men, women, and children gather liziavulo.

People report that they usually find some liziavulo larvae every year, as a rule perhaps 5 small groups during the season. Only seldom it happens that a lucky person comes across so many that the whole village can get a meal. Altogether the inhabitants of a village gather perhaps as much as a small gourd (c. 0.5 l).

The head of the caught liziavulo is crushed. When a feeding larva has been collected, its stomach should be emptied, but people dislike squeezing the spiny creature, and so some persons cut or break it in two and make the contents of the stomach run away. Greater quantities are boiled. Those who are particular scrape off the spines. Lesser quantities are roasted and then as many spines as possible are burnt off. The pupa is roasted. Liziavulo is as a rule eaten fresh. Preservation or marketing does not occur, people say, because the supply is too small.

Likenge (Luvale) is available on mukenge, Combretum zeyheri, Feb.–March (C. M. N. White 1959, p. 13).

Information about I. dione is given in the literature by HULSTAERT, who reports that the Nkundo regard it as edible and call it elima. It is, however, allowed as food only for those Nkundo persons whose parents are dead (HULSTAERT, p. 545). Maybe the larva is reserved for old people, because it is popular, but this is not very likely, as the spines certainly must be as troublesome for the Nkundo as for people at Kalundu. Maybe it is the pupa that is eaten only by the old, and maybe the larva is forbidden for the sake of getting as many pupae as possible. Or maybe the Nkundo reserve the larva for old people, because it is easy to detect and to collect.

The Tetela, who are related with the Nkundo, name an edible caterpillar dima (HAGENDORENS, p. 51). Dima may be the same caterpillar as elima.

From Gabon ROUGEOT (p. 112) mentions that the larva of I. dione is often eaten by villagers.

Imbrasia (Nudaurelia) anthina Karsch

The Nkundo name an edible caterpillar entente. It is identical with I. anthina and feeds on Aframomum (HULSTAERT, p. 667). In Gabon this caterpillar lives in small colonies poor in individuals. It appears during the rainy season and during the minor dry season (Dec.–March) (ROUGEOT, p. 108).

Liungu mundemba

Liungu mundemba, mongu mundemba (M), lifuko, ma (Nk, L, Luv), fuko, ma (C), -(N) kind of caterpillar, perhaps identical with the larva of Melanocera parva Rothschild (Attacidae).

Host-tree: Ochna.

Season: second part of the rainy season (c. February).

I have not seen this caterpillar.

Fuko (C), an edible caterpillar (MACJANNET).

The Mbunda say that mundemba means cock's crest. The larva has spines on its back, which look like a crest, it is explained. Some persons maintain that it is a pattern on its back and not the spines, that is similar to the cock's head-ornament. Ndemba (M) denotes cock, mundembele (M), tail-feather of cock. Lifuko, fuko after the host-plant, mufuko, Ochna.

One kind of liungu mundemba is known. There are no individual varieties, people say. The larva is well-known by old people, especially by women, but less known by younger persons. As its closest relative liziavulo is most frequently mentioned, either because these two caterpillars are very similar, or because

both have hairs growing on their spines, it is said. A few informants say that liungu mundemba's closest relative is muyaya, and that it has just the same appearance as this one, but I could get no details about these similarities. The reason for connecting liungu mundemba with muyaya is probably simply the fact that the latter is the best known of the spiny larvae. In some cases liungu mundemba was first grouped together with muyaya, but on second thought, it was instead classified with liziavulo.

Liungu mundemba is described as being of forefinger-size or of the same size as liziavulo. The body is light, alternatively said to be white, whitish, leaf-coloured, yellow, except the stomach, which is generally known to be red. The spines are big with blunt points. They do not sting then, but when one takes the larva in one's hand one feels as though it were picking. There are hairs upon the spines. All colours except red are mentioned to describe the spines. Some Mbunda maintain that the spines are arranged in a single long row looking like the cock's crest. This idea seems to be based on speculations about the Mbunda name. The Lucazi, Nkangala, and Cokwe assert positively that the spines are arranged in several rows just as on other spiny caterpillars. Some Mbunda agree with this and say instead that there is a black pattern similar to a cock's crest on liungu mundemba's back. Also several Lucazi, Nkangala, and Cokwe describe a pattern of black streaks on the larva's back.

My informants report that liungu mundemba moults once or twice, and that it has the same appearance during the different instars. The pupa is said to be big, black and burrowed in the ground at a finger's depth.

The descriptions of liungu mundemba agree with that given by ROUGEOT (p. 87) of the larva of Melanocera parva Rothschild. Somites 2–11 each with 8 truncated leaden blue spines. The extremity of the spine with 5–6 bristles. Head, thoracic shield, anal flap red. Body greenish yellow with a pattern of black streaks upon the back. Venter red.

Liungu mundemba is found in all types of forests except in Cryptosepalum forest, people report. Ochna trees are pointed out as its host-plants. ROUGEOT (p. 87) mentions Ochna schweinfurtiana as host-plant for the larva of Melanocera parva.

Only once a year liungu mundemba appears. It is contemporaneous with cingoyi, the villagers say. Thus it is to be found roughly in February.

In Angola liungu mundemba occurs in the territories of the Mbunda, Lucazi, Luvale, and Cokwe. In Zambia it is known from Lunda and Nkoya territory, but many Ngangela and Cokwe maintain that it lives only in Angola. Yet quite a number of persons know that it occurs at Kalundu, even if it is rare. There are

only few Ochna trees in the region, and so the larva can not be common, explain my informants.

People report that in areas where liungu mundemba exists it appears every year in small groups with c. 10 up to perhaps 40 or 50 members. Outbreaks are not known. There is no special information about liungu mundemba's habits.

Rougeot (p. 87) says that the larva of Melanocera parva lives in social groups and that the species is known from Zaire and Angola (Bihé).

The Mbunda, Nkangala, Luvazi, Luvale, and Cokwe eat liungu mundemba. They collect it when it is moulting the last time, when it is feeding on the tree during the last instar, and when it is ready to pupate. They also eat the pupa.

Liungu mundemba is rated among the less popular caterpillars on account of its spines but also on account of its insipidity. Most men assert that it is women's and children's food. As usual those women and men who eat it value it higher than those who do not eat it. But none of my informants regards it as one of the very nice caterpillars.

People do not go searching especially for liungu mundemba. There are too few larvae. Sometimes a family is found in passing. The liungu mundemba larvae are considered to be rather easy to discover. A lucky person may find a group two or three times a year, people say remembering the conditions in Angola. At Kalundu perhaps one or a few persons may find a few liungu mundemba caterpillars during a season. Last year, my informants report, a woman collected a group of c. 20 larvae. Since then nobody has heard of any finding.

Liungu mundemba is prepared and cooked as liziavulo. It is as far as my informants know never preserved and never sold on the market.

Liungu mucakalala

Liungu mucakalala, mongu mucakalala (M), liungu muxakalala, mongu muxakalala (M) kind of caterpillar.
Host-tree: Chrysophyllum magalismontanum.
Season: some part of the rainy season.
I have not seen the caterpillar.

Many Mbunda maintain that only one of the two terms is a proper Mbunda name, and think that the other is e.g. a Lucazi or a Luvale name of the same larva.

Liungu mucakalala is named after its host-tree, mucakalala, muxakalala, C. magalismontanum.

One kind of liungu mucakalala is known. There are no varieties, say people.

Sometimes this caterpillar is said to be a relative of muyaya, sometimes it is said to be related to likaulanzinzi. Most people say that they do not know.

According to the most common description liungu mucakalala is of thumb-size with small spines and the colour of the leaves of the host-tree. Some people mention that its head is red. This is remarkable, because as a rule none of my informants has been able to tell the colour of the head of the different kinds of caterpillars.

There is no special information about liungu mucakalala's development.

Chrysophyllum magalismontanum is pointed out as liungu mucakalala's only host. This tree is evergreen and grows along the rivers. The larva appears once a year, according to some of my informants in the first part of the rainy season, according to others in the middle part of the rainy season. Liungu mucakalala is not common. Most people report that it occurs only in Angola, but a few informants say that they have heard that it is to be found somewhere downstream the Luena. It lives in families of c. 100 members.

Liungu mucakalala is eaten in the same stages as muyaya. It is delicious, say the Mbunda, but one can eat it only a couple of times a year in regions, where the host-tree is common.

Liungu muzilili

Liungu muzilili, mongu muzilili (M) kind of caterpillar.
Host-tree: the unidentified muzilili tree.
Season: the second part of the rainy season (c. February).
I have not seen the caterpillar.

Liungu muzilili is said to be named after its host-tree, muzilili.

One kind of liungu muzilili is known. Some Mbunda believe that it is identical with liungu muncikala. About as many Mbunda say that the two terms refer to different caterpillars. None of my informants would agree that liungu muzilili and liungu mucakalala could perhaps be one and the same larva.

Most often liungu muzilili is said to be of thumb-size with small spines and leaf-coloured skin.

There is no special information about its development.

The Mbunda say that liungu muzilili is an inhabitant of evergreen forest along rivers, where muzilili, its only host, grows.

The larva appears when the bulrush millet ripens (c. February), say my informants. It occurs locally in Angola. A few persons say that there is a locality downstream the Luena in the Navua area. (Navua is a tributary of the Luena.)

The Mbunda eat liungu muzilili in the same stages as they eat muyaya, they

say. It is reported to taste very well, even better than cikilakila. Where its host-tree is common it may be eaten once or twice a season, but people at Kalundu see nothing of it.

Liungu muncikala

Liungu muncikala, mongu muncikala (M), lincikala, ma (Nk), lintikala, ma (L), fumbe, ma (C), -(N) kind of caterpillar.
Host-plant: muncikala (Ng), mufumbe (C), an unidentified kind of tree.
Season: rainy season.
I have not seen this caterpillar.

A few Cokwe say that fumbe is the same caterpillar as liungu muncikala, and maintain that the Luvale call the host-tree muncikala or mufumbelela. Other Cokwe report that they have no opinion in this matter.

Fumbe (C), species of edible caterpillar (MacJannet).

The names are said to be derivations from the words for the host-tree, muncikala (M, Nk), muntikala (L), mufumbe (C). Pearson notes muzilili and muntikala as synonyms.

None of my informants knows of more than one kind of liungu muncikala. Some Mbunda state that the terms liungu muncikala and liungu muzilili are synonyms, others assert positively that they denote different kinds of caterpillars, and that also muncikala and muzilili are different kinds of trees.

According to the most common description this caterpillar is big as a finger, spiny and coloured like a leaf.

Liungu muncikala inhabits evergreen forest, say my informants.

One generation of liungu muncikala is known to occur. Mostly it is said to appear roughly in November, when the edible fruits of the host-tree are collected. Sometimes it is said to come roughly in February. Many people report that it is only to be found in Angola. Others think that it occurs also in Zambia, but they do not know.

Liungu muncikala lives in large families of perhaps 100 larvae, I am told.

The caterpillar is reported to taste well, but it is not often found. People collect it in the same stages as they collect muyaya.

Maybe liungu muncikala and liungu muzilili is one and the same larva. Perhaps even the term liungu mucakalala denotes this caterpillar. The statements that are given in connection with these three names are very similar, except that liungu mucakalala is said to have a red head. Yet I have chosen to comprise the hypothesis that three different kinds of larvae are referred to. There is, however, strong evidence for the assumption that the terms liungu

muncikala and liungu muzilili are synonyms. On the other hand it is uncertain if fumbe is a synonym of liungu muzilili, as only a few Cokwe were of the opinion that it is, while others did not know.

(Liungu) limpundukaina

(Liungu) limpundukaina, mampundukaina (mongu limpundukaina) (M).

When the meaning of the term limpundiangela (see kauluulu) was discussed, a few Mbunda informants stated that there is no such word, but that there is a caterpillar called liungu limpundukaina. A big kind of spiny larva with this name lives on the tree mupundukaina, they asserted. I was told that only the Nkangala eat it. Nkangala informants reported that they have never heard of a caterpillar on the tree in question. PALGRAVE (p. 371) says that mupundukaina is a Lunda and Luvale word for Ziziphus abyssinica.

It seems rather probable that the term (liungu) limpundukaina is an accidental invention. The Mbunda persons who mentioned the name did not know anything about the larva except what is already related above.

Pseudantheraea discrepans Butler (Attacidae)

The fully grown caterpillar can attain a length of 90 mm. It is brown and spiny. A lateral row of tubercles with white setae look like a fringe. Hosts in Gabon are Poga oleosa and Uapaca guineensis. In Gabon the species is common everywhere and is usually found in dark and moist forest. The caterpillar lives in big colonies, especially during February–March and August–September. When the caterpillars are going to pupate, they descend from the tree and settle themselves on a low-grown plant or shrub, 0.20–2.50 m over the ground, where a cocoon of webs and leaves is built. The species is distributed from Guinea to Congo (ROUGEOT, p. 72 ff.).

The Cokwe and Pende eat the caterpillar of P. discrepans in Zaire, where they call it mahondela. The host-tree grows in gallery forest and is named mulengo by the Cokwe. The caterpillar is collected in January–February and is rare (LELEUP & DAEMS, table facing p. 6). The term lengo noted by MACJANNET for the Cokwe in Angola as a name of an edible caterpillar is perhaps a synonym of mahondela.

The Bemba consider the caterpillar namusuku as edible (WHITE FATHERS, p. 225). The Lamba collect the caterpillar ichisukuwya on the umusuku tree during January and February (DOKE 1931, p. 101). Musuku (Bemba, Lamba) is a name of Uapaca kirkiana and U. robynsii (F. WHITE, p. 442).

BIEHLER (p. 64) says that njanjenjanje is an eaten, spotted caterpillar on majanje. Mujanje, Uapaca kirkiana (BIEHLER, p. 326).

CHAPTER 6

Hairy, non-urticant, edible caterpillars

The kakomba genus 1. kakomba 2. lixexe 3. cuva 4. lipanda.

These larvae are distinguished by their non-urticant hairs. They are of medium size. All except lixexe are regarded as typical members.

All the four caterpillars referred to here are known to the Mbunda. The first and the third ones are known to the Nkoya. Kakomba and lixexe may be different generations of one species. Perhaps the names cuva and lipanda denote one and the same entomological species. It is also possible that the name cuva denotes two different species. The larvae 1–4 are regarded as edible by the Mbunda. The larvae 1 and 3 are eaten by the Nkoya.

Kakomba

Kakomba, tu (M, Nk, L, Luv, C, N), koso, ma (C), cikombavuto, yi (C), ripaku, ma (N) the caterpillar of Cirina forda (Westwood) (Attacidae).

Host-trees: Erythrophleum africanum, Burkea africana.

Season: before and in the early rainy season (c. Oct.–Nov.).

The identification is based on a study of the moth. Larvae in the final instar (from a length of c. 40 mm) have been reared. Pupa and imago have been obtained.

Some Ngangela and Cokwe say that the terms kakomba and lixexe are synonyms. The Cokwe sometimes say either cikombavuto or kakomba, but the great majority maintain that koso is the only correct term, and that cikombavuto is the name of another kind of caterpillar (mbandama). As the terms cikombavuto and kakomba are very similar, people have by mistake come to believe that they denote the same larva, I am told. The Nkoya mostly say ripaku and declare that this is the proper Nkoya word, while kakomba is a Ngangela word.

Kakomba (Ng), sp. of edible caterpillar (Pearson); koso (C), edible caterpillar (MacJannet); makosu (C), eaten caterpillar (Dos Santos 1960, p. 133).

People do not know the meaning of the word kakomba. A few suggest that it derives from komba, sweep. The caterpillar is provided with small tufts of hair on the side of the body, and these tufts look like small brooms, they explain.

When the larva moves, it sweeps everything that it is passing. Koso, ripaku derive from mukoso (C), mupaku (N), the host-tree E. africanum.

One kind of kakomba is known to exist. Some people maintain the existence of two varieties, one with a darker, one with a lighter body colour.

It is often said, that lixexe is kakomba's closest relative, and that these two larvae are similar in appearance (see the section about lixexe). Some people, however, assert that kakomba and lixexe are different names for one and the same larva. The great majority of my informants say that kakomba is found on mukoxo, E. africanum, in the beginning of the rainy season, and that lixexe is another kind of caterpillar, found on muxexe, B. africana, in the middle of the rainy season in Angola. Those who are of the opinion that only one kind of larva is discussed say either that this larva appears twice a year, and that a caterpillar of the first generation is called kakomba, while a caterpillar of the second generation is called lixexe, or that when the larva is feeding on mukoxo it is called kakomba, while where it is feeding on muxexe it is named lixexe. Some persons suggest that the larvae of the first generation feed on E. africanum, while those of the second generation feed on B. africana. (See further discussion annexed to the section about lixexe.)

Also cuva and lipanda are considered to be closely related to kakomba, as they, too, are hairy.

Kakomba is said to be as big as a finger with long white or whitish hairs. It is cross-striped in black and yellow/white, or, according to some descriptions, speckled in these colours. People know that the caterpillar little by little loses its hairs at the end of the final instar, so that the bands become visible, but that tufts of hairs are left sparsely spread over the body, especially along the flanks.

My informants report that kakomba moults twice collectively. After the first of these moultings it is similar to the adult kakomba, I am told.

The pupa is described as big and black. It is to be found at a finger's depth in the soil.

Larva, final instar (full-grown): c. 50 mm long, c. 12 mm broad. Weight c. 4 g. Head, 1st thoracic segment, anal parts brown-red. Body black, ringed with yellow. Two dorsal, three lateral rows of black or yellowish warts. Somites with yellowish more or less regular bands, sparsely covered with c. 10 mm long tufts of whitish hairs, issued from the warts. Spiracles black.

The pupa is c. 30 mm long, black and found at a depth of c. 5–10 cm. Weight c. 3 g. According to Rougeot (p. 171) the pupae are found at a depth of between 2 and 5 dm.

Kakomba is known to inhabit the E. africanum/B. africana forest. Mostly E.

africanum is pointed out as its only host-tree. People, who think that lixexe is the same kind of larva as kakomba, will point out B. africana, too. There are, however, also some persons, who clearly distinguish the two caterpillars, and who still say that kakomba eats the leaves of B. africana as well as the leaves of E. africanum. A few villagers even maintain that they have cut down E. africanum- and B. africana-trees in the same day at the same place, and collected kakomba larvae from both kinds of trees.

Most people can report that kakomba arrives with the first rain showers forecasting the rainy season, and that it disappears some time after that. Occasionally it is said that it remains for a very long period, or that it returns later at the time when cingoyi is collected. The latter opinion is entertained by those who regard lixexe as the same larva as kakomba.

Kakomba is said to be distributed in the territories of the Ngangela and Cokwe in Angola and of the Nkoya and Lunda in Zambia. My Kangali informants report that it occurs in their area on the muxexe (B. africana) tree at the time of the first rains (E. africanum is not to be found so far to the south). The caterpillar occurs at Kalundu, but the closest good locality is situated on the Namalati.

My informants say that kakomba lives in large families with as much as 100 or more members in each. Where the host-tree is very common, such families are in normal years scattered all over the forest, or at least found in concentrations here and there. Some years there are outbreaks, and square kilometre large areas of forest may be stripped of leaves. In such an outbreak the larvae are discovered even in small groves or in single trees, where they are otherwise missing, I am told. The year after an outbreak is as a rule very bad. The villagers at Kalundu know that certain years kakomba is common on the Namalati and at the forest skirts of the Mulumbwa dambo to the west of the Namalati (c. 10–20 kilometres from Kalundu), where E. africanum grows in profusion together with B. africana. In other localities, e.g. at forest skirts between Kalundu and Mwene Mutondo, it occurs more sparsely. In the years 1966 and 1971 people collected great amounts of kakomba larvae in these places, I am told. My informants report that in 1968 they did not find one single kakomba. People at Luampa know that there are good localities here and there on the Luampa. But in the Zambezi Valley and in Angola kakomba is much more common than in Kaoma District, according to what my informants say.

I obtained a group of fully grown kakomba larvae Nov. 18. The caterpillars accepted leaves of B. africana as well as leaves of E. africanum. They pupated a couple of days later. Some of my specimens remained in pupal stage for c. 30

days, others did not hatch until c. 9 months later, i.e. in the end of August. This speaks in favour of the hypothesis that there are two generations of Cirina forda larvae in the region.

Most Kangali, Yauma, Mbunda, Nkangala, Lucazi, Luvale, Cokwe, Ayisenga, Lunda (Shinde), Ndembu, Lukolwe, Nkoya, Mashasha eat kakomba. The caterpillar is regarded as edible from the penultimate moulting up till the resting stage in the ground before pupation. The pupa is eaten by the Mbunda, Nkangala, Lucazi, Luvale, and Cokwe. The Nkoya and Mashasha regard it as inedible.

Kakomba is considered to be a nice caterpillar, even if it is not so savoury as cikilakila, likese, and cuva. It is bitter, people explain (see below). As a rule it is collected while moulting or when it is ready to pupate. Some persons do not at all eat kakomba larvae that are gathered while feeding.

Men, women, and children search for kakomba. It is easy to catch sight of. In large areas kakomba is one of the most important edible caterpillars, and people make expeditions with the purpose to collect it. At Kalundu people concentrate instead on likese and cikilakila. Some years, however, there are reports going about outbreaks of kakomba along the Namalati, and then it may happen, especially if it is a bad cikilakila- and likese-year, that men from Kalundu go searching for the larvae in question. My informants often complain that the villagers from the Mukunkiki river empty the upper and best parts of the area in question, so that there are no caterpillars left for anyone else. In a normal year one can on the Namalati fill a small gourd (c. 0.5 l) with squeezed caterpillars a couple of times, if one is lucky. In an outbreak year a single household will perhaps fill a gourd with c. 10 l of squeezed larvae. Also at Kalundu people occasionally discover a large group of kakomba, enough for a proper meal for a whole village.

During an outbreak year kakomba will be eaten many times in each Kalundu village, but otherwise it is not eaten at all or only once or twice. In the season 1972 I could only establish two village meals of fresh kakomba larvae stemming from expeditions to Namalati, and a few lesser meals, but several persons from different villages went away to Mukunkiki and other places, where they lived with relatives for some days making excursions in various directions in order to search for kakomba, and they often returned with one litre or more of dried larvae. In other cases visiting relatives brought with them quantities of the same size. Thus kakomba was eaten at least once in most Kalundu villages. I was told that normally people at Kalundu do not take such a great interest in kakomba, but that this year the likese season failed, and so the villagers tried to get kakomba larvae instead.

In other areas between 5 and 10 meals of kakomba for a whole village is reckoned as an average, excluding lesser meals and snacks. This according to my informants at Kalundu.

A tree with a large kakomba family is said to yield about half a gourd (c. 1 l) of squeezed larvae.

It is well-known that some people get sick from eating kakomba. Vomiting, dizzy fits and diarrhoea are mentioned. Persons, saying that one or another or all these symptoms hit them, when they have eaten kakomba larvae, are to be found scattered in about half of the villages. In order to kill the poison different precautions are taken, seemingly varying with the degree of susceptibility of different persons to the bad effects of kakomba consumption. Thus some people say that it is enough to boil the caterpillar carefully once, while others recommend boiling in three or more waters, or else boiling once with ash-water.

Some people think that it is only larvae which have been collected while feeding that cause sickness, and so they do not eat them. All my informants agree that one absolutely must squeeze all gathered kakomba larvae, also moulting ones and ones ready to pupate, because, they explain, the stomach liquid is bitter and possibly poisonous. Kakomba is always boiled, never eaten roasted, as the roasting does not remove the poison, people report. The pupa, however, does not cause any trouble, and it is as a rule roasted. Preserved kakomba larvae are not poisonous.

Parts of greater catches are generally preserved for later use. This is valid also for Kalundu, when there are outbreaks on the Namalati or in other places not too far away. Sometimes, I am told, a few persons gather 5 or 6 sacks (of c. 100 l each) with kakomba larvae from localities along the Luampa river, and travel away to the Copper-Belt towns to sell the caterpillars on the market. Only seldom some person sells kakomba during a few days at Luampa or at Kaoma.

Some information is given in the literature about the larva of Cirina forda. Thus dikoso (Cokwe, Pende, Sonde) is its name in Kwango. Here it is collected in September and is common on the host-tree mukoso (Lefèvre & Daems, table facing p. 6, p. 20). The identification of mukoso as Erythrophleum africanum is tentative (ibid., p. 9). Two colour varieties are known, one speckled in black and yellow, one speckled in black, yellow, and white (ibid., p. 7). Great outbreaks occur where the host-tree is dominant alone or together with Burkea africana. Where the host-tree is common but grows scattered among other species of trees, no great outbreaks occur (ibid., p. 11 f.). In Kwango this larva is very important both as food and as an article for export to other parts of Zaire (ibid., p. 6).

Dos Santos says that the Cokwe when twins are born arrange a ceremony during which they fill a gourd with meat of various animals, including makosu larvae. This meat is a sacrifice (Dos Santos 1962, p. 101). There is no reason to believe that the caterpillars play an irreplaceable role in the ceremony. If they did, people would have to reserve larvae all through the year, in case there should be a twin birth. It is not probable that people store the larvae more than a couple of months. Maybe they keep them longer, yet it seems reasonable to suppose that the use of the caterpillars as observed by Dos Santos was accidental.

The Bemba name an edible caterpillar cikoso (White Fathers, p. 225). The Lamba eat umukoso on the umukoso tree (Doke 1931, p. 101). The Lenje eat bana ba mikoso (Torrend, p. 94). I was told by Bemba, Namwanga, and Mambwe persons, that they eat icikoso, a kind of caterpillar, which is speckled in black and yellow or white, and which is collected in the beginning of the rainy season from the trees kayimbe and mukoso. Kayimbe and mukoso are, according to F. White (pp. 438, 443), Bemba terms for E. africanum.

Blohm reports that during Oct.–Dec. Nyamwezi women gather a kind of caterpillar of little finger size, which is black, and ringed with yellow. It has a predilection for the mugando tree and is therefore named igando. The larva is collected in the afternoon, when it has fed. In a short time 1/4 of a litre is picked together (Blohm, p. 94). The time given for its appearance and the description of its looks coincide with what holds good of the larva of C. forda.

The Pedi eat the fully developed larva of C. forda, noto, which is black and white and lives on B. africana. One generation occurs during spring. Supplies usually are insufficient to warrant preservation (Quin, p. 109).

It is possible that the larva referred to in the following passages is also this same larva of C. forda, which looks white as long as its hairs still remain. Biehler (p. 64) says that the Zezuru (a Shona group) eat a white caterpillar, arati, on the mukarati tree. According to Howman (p. 65) the Shona consume harati, according to Duncan (p. 103) they eat arati. Hannan (p. 248) adds that harati (Shona) is an edible caterpillar, which is found on the mukarati tree. Mukarate (Shona) refers to Burkea africana (Palgrave, p. 89).

Monteiro reports that the black and yellow larvae of C. forda are eaten, when fully grown, by women and children. Some women climb the trees and shake them down (Monteiro, p. 142). The statement originates from the Delagoa Bay area, which is the traditional territory of the Ronga. The closely related Thonga consume the larva of Cirina similis (Dist.), which according to Junod (1927, vol. II, p. 80) is found on the nkanye tree in October. C. similis is identical with C.

forda (Gaede, in Seitz, p. 332). Nkanye is the Thonga name of the tree Sclerocarya caffra (Junod 1927, vol. I, p. 65). Bryant asserts that the Zulu name a kind of caterpillar with variegated colour of black and white ixingovu, and that this caterpillar is common on the umganu tree (Bryant, p. 703). It is eaten by children (ibid., p. 75). Umganu is a Zulu term for Sclerocarya caffra (Doke, Malcolm & Sikakana, p. 71).

Lixexe

Lixexe, ma (M, Nk), lisese, ma (L, Luv), sese, ma (C) entomological status uncertain—generation of, form of, or species closely related to Cirina forda (Westwood) (Attacidae).

Host-tree: Burkea africana.

Season: second part of the rainy season (c. Feb.).

I have not seen this caterpillar.

Some Ngangela and Cokwe assert that lixexe and kakomba are synonyms (see above and below). The Nkoya are not acquainted with the lixexe larva, but some of my Nkoya informants say that there is a caterpillar called riseshe, which is, however, not traditionally known by them.

Masese (Ng), edible caterpillar (Baião); sese (C), edible caterpillar (MacJannet); masese (C), kind of eaten caterpillar (Dos Santos 1960, p. 133).

This larva is named after its host-tree, muxexe (M), musese (L, Luv, C), museshe (N).

As already mentioned in the section about kakomba some persons do not acknowledge lixexe as a special kind of larva but regard it 1. as identical with kakomba, or 2. as a 2nd generation of kakomba. The discussion about these opinions is carried on in the section about kakomba and also at the end of this section. Here in the main part of this section I exclude the frequent statements of lixexe as being the same kind of larva as kakomba and concentrate upon the independent information about lixexe.

One kind of lixexe is known. Most people say that there is only one variety, but sometimes it is maintained that there are two. Lixexe is considered to be very closely related to kakomba. Some people report that they are so similar in appearance that if one of each kind was held in the hand, nobody would be able to tell them apart. But actually, they add, it is not difficult, since they are to be found in different seasons and on different host-trees. Other people think that they are a little unlike in looks, the one being bigger, or more hairy, or darker, or the one having broader bands than the other.

The stages of development and the pupa are described as for kakomba.

Lixexe is known to be an inhabitant of the muxexe (B. africana) forest, where it feeds on the leaves of the B. africana tree, and, according to some persons, also on Erythrophleum africanum.

The caterpillar appears in the second part of the rainy season, most people say. Sometimes it is asserted that it comes twice, the first time before and in the beginning of the rainy season.

Lixexe is distributed in the territories of the Ngangela and Cokwe in Angola. Some people agree that it does not occur in the Nkoya area in Zambia. Others report that it is even to be found at Kalundu, but that it is very rare. The Nkoya themselves do not know if in fact they know the larva at all.

There is no special information about lixexe's habits.

Most Ngangela and Cokwe eat lixexe. The edible stages are considered to be the same as with kakomba. The pupa is eaten.

There are no unpleasant consequences of consuming lixexe like those which result from eating kakomba, say my informants. For this reason lixexe is said to be more popular than kakomba.

Lixexe is eagerly searched for by men, women, and children in areas, where it is common.

People prepare and cook lixexe as they prepare and cook other caterpillars. It is boiled or roasted.

If a large quantity is collected, part of it is preserved. In Angola lixexe is often sold in the markets, people say. Also in the markets of the Copper-Belt towns one can buy lixexe larvae. These are gathered by the Luvale, according to my Kalundu informants.

Leleup & Daems describe a caterpillar from Kwango named disese by the Cokwe, Pende, and Sonde. This caterpillar seems to correspond to lixexe. In Kwango there are two colour varieties, one black and yellow, one black and yellow and white (Leleup & Daems, p. 7). People in Kwango differentiate the dikoso larva (=kakomba) from the disese larva (=lixexe) by the colour of the dried contents of their stomachs and by the breadth of the yellow or yellow and white bands, which is greater with dikoso than with disese (ibid., p. 9). Disese normally lives on B. africana (?), but the moth rarely deposes its eggs on E. africanum (?), too. The disese larvae on E. africanum (?) show, however, a high frequency of deaths before the last moulting, and they never develop into pupae. (Ibid., p. 7.) In Kwango disese is to be found in its prenymphal stage in the second half of February. The pupal stage lasts from March up to November. (Ibid., table facing p. 16).

The disese larva (=lixexe) is very common (ibid., table facing p. 6) and

together with dikoso (=kakomba) it constitutes almost all the caterpillars sold outside the area, c. 40 % of the exported larvae being disese larvae, c. 60 % being dikoso larvae (ibid., p. 6).

Pogge reports from the Northern Lunda area, that he in the beginning of February often received dried caterpillars, which he describes as rather big and striped in black and yellow (Pogge, p. 179 ff.). The statement may refer to lixexe.

Leleup & Daems discuss the relation between dikoso (=kakomba) and disese (=lixexe). They think that it may be two different species, whose segregation is of recent date, or two physiologically distinct races, and that it is excluded that they are two different generations of the same species (Leleup & Daems, p. 9).

Against the assumption that dikoso (=kakomba) and disese (=lixexe) are two generations of the same species Leleup & Daems argue 1. that the caterpillars live on different host-trees, and that disese larvae hatched on E. africanum (?) do not survive until pupation, 2. that in some areas only one of the two kinds is to be found, 3. that in one case disese larvae have been introduced in an area, and yet no dikoso larvae have appeared, and that in another case dikoso larvae have been introduced in a region, and yet no disese larvae have been observed, and 4. that all dikoso pupae observed in February were still unhatched (ibid., p. 7 f.).

For the assumption that kakomba (dikoso) and lixexe (disese) are two different generations of one species speaks 1. that the larva of C. forda (=kakomba) feeds on B. africana in the Transvaal and along Kubango river in Angola in the beginning of the rainy season, 2. that several of my informants report that both kakomba and lixexe are to be found on E. africanum as well as on B. africana, 3. that the kakomba larvae, which I reared, accepted leaves of both these kinds of trees still, when they were in the final instar, 4. that some of the kakomba pupae, which I kept, hatched already in December, while some did not hatch until in August the next year, and that there are in fact at least two generations of the butterflies of C. forda. If the butterflies of the first of these generations lay eggs in December, and if these eggs hatch after a couple of weeks, the larvae will be full-grown roughly at the time when lixexe is said to appear.

The question about the identity of lixexe (disese) must remain open. At least the argumentation of Leleup & Daems for the theory that it is not the larva of C. forda does not appear to be quite convincing.

C. M. N. White (1959, p. 13) informs us that kakomba is found on mukoso, Feb.–March and that lisese is found on musese, Nov.–Dec. This is opposite to what Leleup & Daems found in Kwango and to the information that I obtained in Kaoma District. C. M. N. White (p. 13) further says that likoso lives on mukoso Dec.–March. Likoso is probably a synonym of kakomba.

Cuva

Cuva, vi; viuva (M, Nk, L, Luv), shi, ma (C), liyungu atoma, mayungu atoma (C), ritutura, ma (N) the caterpillar of Imbrasia epimethea Drury (Attacidae) possibly an additional Imbrasia species or a special form of I. epimethea on Afrormosia angolensis (see below).

Host-trees: Julbernardia paniculata, Brachystegia longifolia, Erythrophleum africanum, possibly also Afrormosia angolensis.

Seasons: 1. first part of rainy season (c. Dec.), 2. second part of rainy season (c. February), 3. early dry season (c. April).

The identification is based on a study of the moth of Imbrasia epimethea Drury. Larvae of the final instar (from c. 45 mm of length) have been reared. Pupa and imago have been obtained.

According to some old Cokwe shi is the correct term of the olden times, but this term is nowadays forgotten or else not in use, having been displaced by liyungu atoma. Most Cokwe only know the latter name.

Cuva (Ng), sp. of edible caterpillar, viuva (Ng), dark larva which is eaten (Baião); vyuva (Luv), sp. of edible caterpillar (C. M. N. White 1959, p. 13); shi (C), edible caterpillar (MacJannet).

The Ngangela term is believed to be a derivation of juvulula or uvulula, shed skin. These caterpillars have a habit of heaping together in a compact group when moulting, people explain. Shi (C) is said to be of unknown origin. Liyungu atoma is named after its white (utoma) colour, say the Cokwe. The Nkoya derive the term ritutura from tutura, mass together, and explain in the same way as the Ngangela do.

One kind of cuva is known to exist. Most people know of two varieties, one without red nipples and one with, both living together in the same group. The former are sometimes said to be the females, the latter to be the males. Yet a third variety exists, according to the opinion of a few Ngangela and Cokwe. This variety is a little bigger than the others and is to be found only on Afrormosia angolensis, they maintain.

The Ngangela and Cokwe mention lipanda as cuva's closest relative, and say that the only difference between these two is the colour of the stomach, which is black with cuva, red with lipanda. The Nkoya relate cuva to kakomba, because both are hairy, they say.

Cuva is described either as black or white, depending upon whether people first come to think of the hairs or of the skin colour. Often it is said to be black and white. The larva is covered with long, white hairs. The skin underneath is said to be completely black, with rows of warts. A few persons add that there are white stripes along its sides.

The villagers know that fully grown cuva larvae to a large extent drop their hairs. Cuva is known to moult twice. Some people even say three times. The young caterpillars are said to be similar in appearance to the older ones, except that their hairs are dark or black instead of white. A man, who during two years in succession had had a cuva colony on his yard, could not give any closer information about the looks of the larvae, although the tree in question had its flat crown only c. 3 m over the ground. The cuva larvae are generally known to moult in a compact group on the trunk of the host-tree.

The pupa is described as being of medium size and black, and to be found in the ground at a depth of one finger.

Larva, final instar: c. 55 mm long, c. 12 mm broad. Weight c. 4 g. Head light brown. Thoracic shield and anal flap dark red, sparsely covered with white long hairs. Body black, covered with c. 10 mm long white hairs. Somites 5–11 each one with a white pattern similar to a Greek ypsilon leaned forwards with anterior stroke prolonged along the lateral emargination of the somite. Three lateral rows of warts. Dorsum with two rows of warts on somites 2–11. Warts with tufts of undulated hairs. Tip with small blackish, c. 0.5 mm long spine. Anal flap rounded. Spiracles black.

Within the same group of caterpillars specimens with only black warts, specimens with only red ones, specimens with dorsal warts red, lateral ones black, and specimens with dorsal warts as well as with lateral warts over spiracles red, other lateral warts black may be found. Specimens without spines are also seen.

Prior to pupation most hairs fall off. The pupa is c. 40 mm long. Weight c. 2 g. It is black and buried a few cm down in the soil.

Displayed specimens were recognized by everybody.

Julbernardia paniculata, Brachystegia longifolia, Erythrophleum africanum, and Afrormosia angolensis are pointed out as cuva's host-trees. The latter tree is only said to be host of the bigger form of cuva. In the Kalundu region cuva is, according to my informants, most often found on J. paniculata, but people coming from other areas say that E. africanum and B. longifolia are as much appreciated by the larvae as is J. paniculata. It is possible that cuva simply is most common on the host-tree that is most abundant in the area.

Cuva is said to appear once, twice, or three times a year. Most people say twice, or else that it is to be found during a very long time, longer than for any other caterpillar except liungu luanda and perhaps lipanda. Some persons, who are very well acquainted with cuva, assert positively that it appears three times, once during the first part of the rainy season (c. Dec.), once during the second part of the rainy season (c. Feb.) at the same time as cingovi, and once after the rains,

before the cold season (c. April). The last two periods are more frequently mentioned than the first one. My more knowledgeable informants report that it is less common the first time it occurs, and that it is most abundant in its second generation.

Cuva is distributed in the territories of the Ngangela and Cokwe in Angola and of the Nkoya in Zambia. It occurs at Kalundu.

The pattern of frequency for cuva is described as follows:

There are no especially good cuva localities, but the larva may be found anywhere in suitable habitats. The caterpillars live on old trees in large families of 100 or more members. Such families are scattered all over the forests. They are sometimes found even in small trees. The numbers fluctuate from year to year, but no outbreaks on a large scale like those of kakomba are known. Even if cuva is not as common as kakomba and lipanda, it is nevertheless one of the most common caterpillars.

In the Kalundu region people report that cuva did not appear at all in the cold year 1968, and that the year 1973 was a very bad one. The cause was in both cases drought, my informants explain. Other years during the sixties and early seventies are described as more normal.

I obtained a group of larvae in the final instar from E. africanum Feb. 9. The caterpillars also accepted leaves of J. paniculata and of B. longifolia, but not of A. angolensis. They buried themselves Feb. 14. Imagos hatched in three intervals during the 2nd half of October (1973), the second half of December (1973) and the second part of February (1974), i.e. the pupal stage lasted c. 8, 10 and 12 months respectively. Generally species belonging to the family Attacidae live for c. 2 months in active stages. If this is valid for the larva of Imbrasia epimethea too, one can calculate that the larvae of the first generation will appear in edible stages in December, that the larvae of the second generation will appear in edible stages in February, and that the larvae of the third generation will appear in edible stages in April.

Most Yauma, Mbunda, Nkangala, Lucazi, Luvale, Cokwe, Ayisenga, Lunda (Shinde), Nkoya, and Mashasha eat cuva. The caterpillar is collected from the time of the penultimate moulting until it is resting in the ground prior to pupation.

The pupa is eaten by the Mbunda, Nkangala, Lucazi, Luvale, and Cokwe. The Nkoya and Mashasha regard it as inedible.

The villagers consider cuva to be nice to eat, but not comparable with cikilakila, likese, or muyaya. The larvae that feed on the leaves of J. paniculata or B. longifolia are said to be more savoury than those which feed on E. africanum

leaves. The latter are judged as being bitter and sour. For this reason an epicure, people tell me, moves over a group of caterpillars discovered upon E. africanum to J. paniculata, and keeps them feeding there for a couple of days, before he or she cooks them. The bitter or sour taste will have disappeared then. Most people prefer cuva to kakomba, the former being fatter and more delicious, even if they are collected from the same kind of tree.

Cuva is, just as other caterpillars, best when it is moulting or when it is ready to pupate. Feeding caterpillars of the penultimate instar are seldom gathered, as they have a very soft skin and thus are difficult to prepare. After the last moulting the skin stiffens, and so the larva is more easy to prepare. As the cuva larvae are difficult to find, when they have already dug themselves into the ground, people will hardly intentionally postpone the collecting, when they have detected full-grown or nearly full-grown larvae feeding in a tree.

Men, women, and children look for cuva. At the time of its second appearance it is the most important caterpillar at Kalundu, giving a higher yield than the other larvae that occur simultaneously, and much time is devoted to collecting it. The cuva larvae are known to be easy to catch sight of, as they stand out clearly against the surroundings. They are especially easy to see, when they sit in a white clump moulting on the brownish trunk. Moreover, the larvae do not try to hide, but move about without fright when one approaches, even if they are not as restless as kakomba. They have a rather sluggish temper, say my informants.

It is said that cuva is eaten many times a year. In one average year one village can eat between 5 and 10 proper meals of cuva larvae. 1972–1973 was a poor season, and people reported that up to March they had made only solitary discoveries of c. 10 caterpillars at a time. Only 4 villages had had proper cuva meals. In the forest villages, however, most people said that they had eaten snacks of cuva several times, and showed a measure of about one or two fistfuls as the entire catch per person. Only one cuva family large enough for a whole meal was recorded.

Complaints about the scarcity of cuva are common in later years, people say. For several years this larva has been more rare than usual. Also the inhabitants of the forest villages agree about this.

Cuva larvae, which have been collected while feeding, are sometimes squeezed in the usual way. Sometimes people break each caterpillar in two in order to get rid of the stomach contents more readily. The skin is hard like a shell and so this is the best method, they explain.

It is well-known, that when cuva larvae are boiled, they after a while change colour and become red.

Marketing of cuva occurs, but only rarely.

Cyuva (Luvale) is available on mukoso, Erythrophleum africanum, and munyumbe, Isoberlinia (Julbernardia, F. WHITE, p. 125) paniculata, Dec.–March (C. M. N. WHITE 1959, p. 13).

Lipanda

Lipanda, ma (M, Nk, L, Luv), panda, ma (C), -(N) the caterpillar of an Imbrasia (sensu stricto)? species, possibly a form of the species Imbrasia epimethea Drury.

Host-trees: Brachystegia spiciformis, B. type longifolia.

Seasons: first part of rainy season (c. Dec.), second part of the rainy season (c. Feb.), and early dry season (c. April).

I have not seen this caterpillar.

Lipanda (Ng), sp. of edible caterpillar (PEARSON); mapanda (Luv), sp. of edible caterpillar (C. M. N. WHITE 1959, p. 13); panda (C), edible caterpillar (MACJANNET).

Various explanations of the name lipanda, panda, are offered. Some people say that it is a derivation from mpanda, fork of tree, and maintain that these larvae always moult where the trunk ramifies. Others think that it derives from mpanda, tuft of hair, and assert that the hairs of a lipanda larva look like the top-knots on the head of an owl. A third suggestion, which seems to be more well-founded, is that the caterpillar is named after mupanda, the miombo forest.

One kind of lipanda is known. There are no varieties, people say. The larva is considered to be closely related to cuva, the only difference between the two caterpillars being that the stomach or underside of lipanda is red. Most Ngangela and Cokwe people at Kalundu have heard of lipanda, and say that one can only distinguish them by looking at the stomach.

Lipanda is described as being of forefinger size and either black or white, or black and white. The hairs are white and long. The skin is black, but some people maintain that the back is white, or that there are white markings to be seen. The skin is covered with rows of small spines/warts/warts with small spines. These are black/red. The stomach is red.

Most people report that lipanda moults twice. Some persons say that actually it moults three times, but that this fact is little known. The larva of the earlier instars is said to be similar in appearance to the adult, but the hairs of the young one are blackish or black. The pupa is said to be like that of cuva.

The most often pointed out and most well-known host-tree of lipanda is B. spiciformis. Also frequently pointed out is B. type longifolia, but people agree

that lipanda prefers the former tree. Sometimes it is said that Julbernardia paniculata, Erythrophleum africanum, Burkea africana, Swartzia madagascariensis are hosts of lipanda.

Those who are familiar with lipanda report that it occurs in two or three generations in a year. The first time it appears in the beginning of the rainy season (c. Dec.), the second time it comes at the same time as cingoyi (c. Feb.), the third time it is to be found before the cold season (c. April). The February generation is known by almost everybody, the April generation only by few persons.

My informants say that lipanda occurs in the territories of the Ngangela and Cokwe in Angola. Only a few persons maintain that it is to be found in the Nkoya area. Some people say that it exists in the Lunda territory in Northwestern Province of Zambia.

Lipanda's pattern of occurrence and habits are described as being identical with cuva's. The only difference is that lipanda as a rule is said to be more abundant than cuva, both in normal years and in years of outbreaks. The good years with lesser or greater outbreaks are also more frequent. In this respect lipanda is compared with kakomba. Those who are well acquainted with lipanda report that it is most common in its second generation, and that the outbreaks normally occur in February. In April the larva is most rare.

The descriptions given indicate that a very common form or species is referred to. If the statement that lipanda feeds on the leaves of J. paniculata in the same areas and at the same time as cuva is correct, it is probable that lipanda is an independent species. If not it is more possible that it is a form of Imbrasia epimethea Drury feeding on B. spiciformis and perhaps on other trees too. It may also be an independent species. Compared with the descriptions in the literature the information I have got about lipanda seems to correspond most closely with the descriptions given by Rougeot (p. 96) of the larva of I. ertli Rebel, which is said to be black with a yellowish dorsal band and yellowish lateral markings; each somite with small spines; body covered with numerous white hairs. Other caterpillars described by Rougeot and Pinhey can be excluded, because they differ too much from the lipanda larva as it is depicted by people at Kalundu. Rougeot (p. 96) reports that the larva of I. ertli feeds on Brachystegia and Berlinia (=Julbernardia, Isoberlinia, F. White, p. 100), where they live in large groups. According to Pinhey (p. 7) I. ertli is a form of I. epimethea Drury. Rougeot (p. 6 f.) states that the latter species is very rich in forms.

Most Yauma, Mbunda, Nkangala, Lucazi, Luvale, and Cokwe eat lipanda. They gather it in the same stages as they gather cuva.

The pupa is eaten by the Mbunda, Nkangala, Lucazi, Luvale, and Cokwe.

Lipanda is as popular as cuva.

People in Angola search eagerly for lipanda, which is often collected in larger quantities than cuva. Lipanda is one of the most important caterpillars in the home areas of my Ngangela and Cokwe informants, according to what they say.

Lipanda is prepared as cuva. Preservation and marketing occur.

Lipanda (Luvale) lives on mukoso, Erythrophleum africanum, Dec.–March (C. M. N. White 1959, p. 13). My informants most often indicate Brachystegia spiciformis as the host-tree of lipanda.

CHAPTER 7

Edible, urticant caterpillars

The genus of edible urticant caterpillars 1. cingoyi 2. lindengola 3. kavambe.

These caterpillars are distinguished by their urticant hairs. The Mbunda know of numbers 1 and 3. The Nkoya know of number 3. The Nkangala are familiar with all the three. Each kind probably corresponds to one entomological species. The Mbunda eat cingoyi and kavambe larvae. Some Nkoya eat kavambe. The Nkangala regard all the three kinds as edible.

Cingoyi

Cingoyi, vi (M), ngoyi, vi (M, Nk), ngoyi, va (Nk, L, Luv), lingoyi, ma (M, L, Luv), lingoni, ma (Luv), cingoyi, yi (C), ngovi, ma (C), citetengo, vi (C), -(N) the caterpillar of Micragone ansorgei Rothschild (Attacidae).

Host-plants: Swartzia madagascariensis, Copaifera baumiana, Julbernardia paniculata, Brachystegia longifolia, Brachystegia spiciformis.

Season: the second part of the rainy season (c. Jan.–March).

The identification is based on a study of the moth. Larvae from a length of c. 35 mm have been reared. Pupa and imago have been obtained.

Most Mbunda regard the term cingovi as the proper Mbunda word and say that the other forms are adopted from the Lucazi or Luvale. Both cingovi, ngovi, and lingoyi are frequently heard among the Mbunda. Most Cokwe maintain that ngoyi is the correct Cokwe word. Some people, however, assert positively that citetengo is the proper term, and that ngovi is not a Cokwe word at all. Sometimes Cokwe persons say cingoyi, but all agree that this is a loan from the Ngangela.

Lingoyi (Ng), sp. of edible caterpillar with irritating hair, ngovi, sp. of edible caterpillar with poisonous hair (Pearson); mangovi (Luv), sp. of edible caterpillar (C. M. N. White 1959, p. 13).

The term cingoyi and its allies are said to be derivations from a word vungona (M), lingona (L, Luv), meaning urticant hair. Citetengo is, according to my Cokwe informants, a compound of mutete and -ngo, -ngo being either part of a term for urticant hair or the designation for a sound of a blow.

One kind of cingoyi is known. People say that there are two colour varieties, one ringed in equally broad red and black bands, the other ringed in very broad red and very narrow black bands. Some persons assert that the latter is instead quite red. Both varieties are living together in the same families, I am told.

The Nkangala report that cingoyi and lindengola are closely related. People belonging to the other ethnic groups, who do not know of lindengola, say that they do not know of any relatives of cingoyi. It is however grouped together with kavambe, as they both have urticant hairs. But they are so very different in other respects, so they can not possibly be any very close relatives, say my informants.

Cingoyi is described as being of index finger size with long, white, urticating hairs. It is striped or ringed in red and black. Several persons, mostly women, report that the caterpillar has small warts which are red, or, according to some villagers, black on black rings, red on red rings.

It is said that cingoyi moults twice. When it is fully grown or nearly so, many hairs fall off, so the red and black pattern becomes visible. Earlier the larva is almost completely covered with white hairs.

The pupa is assumed to be big and black, and to be buried in the soil.

Larva, penultimate instar: similar to final instar.

Larva, final instar; c. 55 mm long, c. 10 mm broad, weight c. 3.5 g. Head, thoracic shield, and anal flap reddish brown with sparsely blackish hairs. Body red, densely covered with c. 20 mm long white hairs. Two dorsal, two lateral rows of tubercles on each side, vertillicated with c. 2 mm long black setae. Under spiracles thin, yellow, longitudinal stripe broken by black or red tubercles. Spiracles black with yellow ring. Venter light green. Two colour varieties occur with intermediate forms; one has red body, black tubercles, and lateral intersegmental area with broad black, upwards narrowing field; one has red body, red tubercles and lateral intersegmental area with narrow black, upwards narrowing field, set in yellow. Prior to pupation most hairs fall off, and venter becomes dirty green.

Pupa c. 30 mm long, black. It is found close to the surface in a slight cocoon made of web, soil particles, and withered leaves.

Displayed specimens of cingoyi larvae of a length from c. 35 mm were identified by almost all my Ngangela and Cokwe informants. The Nkoya classified them as kazanguzangu larvae. Nobody recognized the pupa. When I asked if it possibly could be a cingoyi pupa, people answered that it was too small. The white hairs as well as the black bristles are supposed to cause the urtication. The expressions red or black warts and spines refer to the red tubercles and their distinct black bristles. The larvae with narrow black fields set in yellow are pointed out as the ones with broad red bands. The yellow and red coloured fields bordering upon each other are conceived as one red band.

My informants say that cingoyi lives in open habitats with shrubs and young or low trees, especially in abandoned cultivations. The caterpillar prefers Swartzia

madagascariensis, a low tree, and Copaifera baumiana, a shrub, according to what I am told, but it also feeds on Julbernardia paniculata, Brachystegia spiciformis, B. longifolia.

Once a year, people say, in the second part of the rainy season, at the time when the bulrush millet forms ears, cingoyi appears, and then it lives up to the time, when the first heads of millet and maize ripen. When the first cingoyi larvae are found, people know that there are also several other kinds of caterpillars to expect in the next few days and weeks.

Cingoyi is said to be common in the territories of the Ngangela and Cokwe in Angola and in the territories of the Lunda and Nkoya in Zambia. It occurs at Kalundu.

People say that cingoyi lives in small scattered families, usually with between 10 and 20 members in each. The number of cingoyi larvae fluctuates from year to year, but there are always some to be found. These caterpillars are very active. It is said that they are moving around all the time, eating some leaves here, some there, and then suddenly the whole family creeps over to the next host-plant. If they find a S. madagascariensis tree or a C. baumiana shrub, they remain a little longer, perhaps half a day, on the other trees they just stay for a little while. Only very rarely they strip a host-plant completely of its leaves.

I noted the first cingoyi larvae in the penultimate instar Jan. 25. On the 7th of February I obtained specimens ready to pupate. The first of my larvae pupated Feb. 9, the last March 2. Pupal stage lasted c. 3 weeks or c. 1 year. The reared larvae consumed leaves of all the plants that were pointed out as their hosts by the villagers.

The Mbunda, Nkangala, Lucazi, Luvale, and Cokwe, but not the Nkoya and Mashasha, eat cingoyi traditionally. It is regarded as edible when it is about 40 mm long. As a rule people collect the feeding and the moulting caterpillars, not the ones in the soil, since these are, as well as the pupae, too difficult to get hold of. One can never know where cingoyi will choose to bury itself, people explain.

Cingoyi is one of those caterpillars which quite a number of persons, mostly young people, have ceased to collect.

When the attitudes to cingoyi as food are discussed, two opinions are discernible. One is advocated mainly by those who have given up gathering and eating it. According to them it is a sour larva, which urticates mouth and throat for a whole day, when it is consumed. Those who collect cingoyi mostly report that it has a nice taste and is comparable to cuva or kakomba both in taste and in fatness. They explain that it is the pain that is caused by cingoyi's hairs, when one is gathering it, that has made so many a young woman lose interest in it (see

below). Most men declare that cingoyi is women's and children's food, but the women often report that the men certainly eat it, when it is served.

The cingoyi larvae are generally collected by women. The children avoid them, because they are afraid of the urticant hairs. The women say that it is very easy to catch sight of cingoyi, as the black and red colours attract attention from a distance. It often happens, they say, that when a woman is pounding meal close to the area of abandoned cultivations around the village, she suddenly discovers a cingoyi family near by. A short walk in the surroundings may yield one or two groups of the larvae. Many elderly women regard cingoyi as a very useful caterpillar. Needing relish, they can often solve the problem by searching for cingoyi in the immediate surroundings.

When one has been urticated by cingoyi, one will suffer from swollen fingers and pains for a whole day, yet cingoyi is not as bad as kazanguzangu larvae, lingongolila, nienie. The women try to avoid touching the larvae. One method is to scrape them down into a gourd with a stick, but this is difficult, since they cling firmly to their leaves and twigs. Another method is to nip off a part of the twig, with the caterpillar, and to drop it into the gourd. One can also break off a branch or a number of branchlets with a whole family of larvae, and then walk home with the branch or the branchlets in the hand. There is, however, a risk that one or several of the lively creatures decide to escape and creep down on to one's hand, causing much pain, I am told. The best method is said to be to smear the hands with ash and pick the larvae with the fingers. Even if the ash does not completely prevent one from being urticated—the fingers will perhaps swell a little—it will mitigate the suffering. The other methods are considered to be too time-absorbing.

Five meals a season is reported to be normal. My female informants say that they usually gather cingoyi about five times, and that they get about 10 or 20 larvae each time.

To prepare the cingoyi larvae the women put them on the embers in order to burn off the hairs and bristles. Specimens that have been collected while feeding are squeezed. As cingoyi has a soft skin, this procedure is not easy. Moulting larvae are often roasted directly and eaten as a snack. Otherwise cingoyi is as a rule boiled and eaten as relish.

Preservation does not occur, nor does marketing.

Around several villages I noted groups of full-grown cingoyi larvae, indicating that the inhabitants had ignored them. At least half the villages did, however, still eat cingoyi.

I would compare the urtication of cingoyi with that of the burning nettle,

Urtica urens L. I could not feel any difference in taste between cuva and cingoyi.

Lingoyi (Luvale) is available on munyumbe, Isoberlinia (Julbernardia, F. White, p. 125) paniculata, and musamba, Brachystegia longifolia, Dec.–March (C. M. N. White 1959, p. 13).

Lindengola

Lindengola, ma (Nk), -(M, L, Luv, C, N) the caterpillar of Holocerina agomensis Karsch (Attacidae).

Host-plant: mundengola, an unidentified tree.

Season: before and in the beginning of the rainy season.

The identification is based on a study of the moth. Larvae from c. 30 mm have been reared. Pupa and imago have been obtained.

The Nkangala say that lindengola is named after its host-tree, mundengola. One kind of lindengola is known, but there are several varieties, which may be found together in the same group of caterpillars. The closest relative of lindengola is cingoyi, report my informants.

This larva is described as being small, about as big as half a finger, and striped in red and black. It has stinging hairs like those of cingoyi. The Nkangala tell me that it moults once, and that it looks the same all through its life. The pupa is not known.

Larva, final instar: c. 40 mm long, c. 8 mm broad. Weight c. 3 g. Head, thoracic shield, anal flap brown. Body with 5–10 mm long white hairs. Two dorsal, two lateral rows of tubercles. Tubercle verticillated with 2–3 mm long setae. I have observed two colour varieties; one has light reddish body and yellow tubercles with a black pattern and with black or white setae; one has black dorsum with red spots, red lateral area, yellow or red tubercles, black setae. During the latter part of final instar the hairs are to a large extent rubbed off.

Displayed specimens of lindengola larvae were often identified by my Nkangala informants. A few Mbunda persons knew that the Nkangala name them lindengola and eat them. Everybody else classified them simply as kazanguzangu larvae, i.e. as unknown larvae with stinging hairs.

The Nkangala report that this caterpillar lives in most types of forest, particularly in open habitats like abandoned cultivations and forest skirts. Once a year it appears at the same time as cikilakila, before the beginning of the real rainy season. It disappears when the rains become heavy. Lindengola is distributed in the territories of the Ngangela in Angola and of the Nkoya in Zambia. It is to be found at Kalundu. The larva never becomes abundant. It lives in small families of c. 10 members.

I obtained a group of lindengola larvae Oct. 28. In this group there were specimens of both the described types. The caterpillars pupated Nov. 9. The pupal stage lasted c. 3 weeks.

The Nkangala traditionally collect lindengola larvae that are moulting or that are feeding in the tree. It is difficult to determine to what extent they still take interest in them and eat them. In villages where only Nkangala persons live it is said that lindengola is still appreciated by everybody. Nkangala persons who live together with people belonging to other ethnic groups often say that they do not at all know of this larva, and when they little by little admit that they are familiar with lindengola, or at least have heard of it, they maintain that they would never think of eating it. It is, however, evident that they are ashamed of their traditions in respect of lindengola, and so perhaps they eat it but do not want to talk about it.

Those who report that they collect lindengola larvae say, that these caterpillars are best when they are full-grown, because when they are younger, one will not get even a fistful of them. The pupae are so few and small that it is not worth while to search for them.

Lindengola is compared with cingoyi, and the Nkangala say that the one is as nice as the other. As a rule it is the women who collect the lindengola larvae. They discover them in passing, and say that they are very easy to catch sight of. Mostly the women and the children eat them together. The men say that lindengola is nothing for them, the larvae being too few.

The hairs of lindengola are about as urticating as those of cingoyi. The women say that they prefer to gather them with ashes on the fingers (cp. p. 107).

The Nkangala women and children eat perhaps one or a few meals of lindengola in a season, I am told. The larva is prepared in the same way as cingoyi. Lindengola is as a rule roasted.

Kavambe

Kavambe, tu (M, Nk), kavambi, tu (M, Nk, L, Luv, C), kambambe, tu (N) kind of caterpillar (a species of Limacodidae).

Host-trees: Julbernardia paniculata, Brachystegia spiciformis, Baphia obovata.

Season: the second part of the rainy season (c. Feb.–March).

I have seen the caterpillar.

The Mbunda often say kavambi, but old people report that kavambe is the proper form. Some Nkoya only know of this larva as an unknown mbambe larva (see chapter 10). Most of my Nkoya informants, however, distinguish it as a special kind and name it kambambe.

Kapambe (Nk), kavambi, luvambi (Ng), sp. of small poisonous caterpillar;

livambi (Ng), sp. of edible caterpillar with poisonous hair; kambambe (M), kavambi (Ng), sp. of edible caterpillar (has irritant hair) (PEARSON); mpampe (Ng), caterpillar with stinging hair (BAIÃO).

Kavambe, kavambi, kambambe are said to be derivations from vamba, bamba, urticate.

Only one kind of kavambe is known. People report that there are no individual varieties. Kavambe is not considered to be especially closely related to any other known kinds of caterpillars, but it is as a rule enumerated together with the rest of the urticant, edible larvae. Some people have observed that there exist unknown, nameless caterpillars, which are very similar to kavambe. This is remarkable, as people otherwise do not know anything at all about the appearance of larvae that are not named. A few persons told me, when I asked about these equals of kavambe, that they, too, were kavambe larvae, but not real ones. Others asserted positively that it is absolutely wrong to use the name kavambe for any other creatures than the real kavambe larvae. The reason why people do not take interest in the caterpillars in question is that they are regarded as quite useless, I am told.

Kavambe is described as being very small, the smallest of all caterpillars, say my informants. There are white, burning hairs on its red body. According to some people it is longitudinally striped, according to others it is transversally striped.

People know that kavambe moults collectively twice. It probably pupates in the ground, but nobody has ever seen any of the certainly very small pupae.

Observed larva: c. 15 mm long, c. 4 mm broad. Weight c. 0.3 g. Head, thoracic shield, anal flap light red. Body medium red. Two dorsal, one lateral row of yellow tubercles with yellow setae. Tubercles and setae c. 1.5 mm long. Subdorsal yellow stripe with red spots. Under spiracles first one wavy, broad, yellow stripe, and then yet further down a yellow, interrupted line. Spiracles black.

According to my informants a larva of this appearance is about full-grown.

Displayed specimens of kavambe larvae of a length from c. 2 mm were identified by most Ngangela and Cokwe, whether the larvae were in group or single. Also most Nkoya recognize them, but there are also many Nkoya who say that these larvae are unknown mbambe larvae (mbambe is the general Nkoya term for urticant caterpillars that are not known, see kazanguzangu).

It seems probable that the term kavambe refers to one polyphagious species. The larvae of the Limacodidae family have a characteristic appearance. In the Ethiopian region the family is represented with over 250 species (JANSE, p. 3 f.).

My informants report that kavambe is to be found in forests and in

abandoned cultivations, where it feeds on the trees Julbernardia paniculata, Brachystegia spiciformis, and on the shrub or small tree Baphia obovata. J. paniculata and Baphia obovata are most often mentioned. Kavambe prefers the leaves of these, I am told. The Nkoya generally point out only J. paniculata, if they know any host at all.

Once a year, at the time when cingoyi is to be collected, kavambe appears. It disappears before the end of the rains, I am told.

Kavambe is distributed in the territories of the Ngangela and Cokwe in Angola and of the Nkoya and Lunda in Zambia. It occurs at Kalundu.

People say that kavambe lives in large families, especially around the villages in the young trees of the abandoned cultivations. A few persons also know that it is to be found in old trees in the forest. When the kavambe larvae are small, they keep, according to all accounts, together in one very large family on the underneath side of one leaf. They are so many that one can not see a glimpse of the green surface, and they move in a thick, gliding mass. Their number is estimated to 100 larvae or more. The reason why they stay under the leaf is that they are afraid of enemies, people say. These young kavambe larvae are said to lick off the surface of the leaf, leaving nothing but a transparent membrane. The attacked leaf soon withers. When the caterpillars have finished one leaf, they do not move far. They lick perhaps every other leaf on a branch. Soon, however, the members of the family are so big that there is not room for them all. Then they divide into two groups. Each time they have grown so much, that there is not room enough for all the larvae of a group, they split up into two smaller companies. Soon they are so big that they can bite through the leaf, but even adult kavambe larvae never touch the veins. My informants say that kavambe never changes host-tree. They are very small and eat little, so there is no need for migration, I am told. Often several families live together in the same tree. Within one and the same family all the larvae are usually of the same size.

I obtained the first group of kavambe larvae Jan. 21. These larvae were c. 2 mm long. They consumed the leaves of the pointed out host-plants. During February I observed larvae of a length of 2–15 mm.

Most Mbunda, Nkangala, Lucazi, Luvale, Cokwe, and quite a number of Nkoya and Mashasha persons eat kavambe. A kavambe larva should according to my informants be c. 7 mm long and c. 2 mm broad to be eaten.

It is said that at western Kalundu and at Mangango young women have to a large extent given up gathering kavambe. It is too small and difficult, I am told. Several times such young women complained of the bad relish situation within 10 m from a tree with enough kavambe larvae for a meal.

Some Nkoya say that kavambe is inedible for the Nkoya. Others maintain that the Nkoya have eaten this caterpillar since the time of the first ancestors. A few persons assert that the habit of eating kavambe was learnt from the Luvale many years ago. Other Nkoya say that the custom came from the Mashasha. Among the Mashasha, too, the opinions differ as to the traditional view of the edibility of kavambe. All the Nkoya and the Mashasha agree that kavambe is women's and children's food. Only in one of the three Nkoya villages at Kalundu the women and children report that they eat it.

Men often say that kavambe is sour or insipid, and that it is too small to be eaten. Some Ngangela and Cokwe men, however, praise it, and say that they are delighted to get it as relish, but they complain that it has hardly any fat at all. Women and children admit that there is not fat, yet they declare that it is a very nice caterpillar, well comparable with others, especially when it is boiled with ash-water. A pot of boiling kavambe has a smell of flowers, I am told. According to the women the men eat kavambe larvae more often than they acknowledge. At least the men in this village do so, a group of women may report.

Kavambe is traditionally an important caterpillar, and women and children spend much time in searching for it. The caterpillars are easy to find, because, people say, they leave behind them small clusters of wilted, dead leaves, which conspicuously stand out against the healthy, green foliage. Mostly the women and the children look for and gather the larvae around the village or around the fields in abandoned cultivations. It is easy to collect a substantial amount of kavambe larvae, and women often send out their girls to get enough for a meal, knowing that they probably will find a sufficient number.

When sensitive areas of one's skin come into contact with kavambe hairs, one will get burnt and feel pain for one day. As the skin in the palm of the hand is relatively thick, it is however not affected. The kavambe collectors usually smear their hands with ash, and then they try to avoid touching the hairs with the more exposed parts. The caterpillars are scraped off the leaf with a stick or with the hand, into a vessel. They are rather sluggish, so there is no need for covering the pot or the bowl, even if one is a couple of kilometres from home. Fugitives are easily removed from the edge.

My informants estimate that c. 5 village meals with kavambe larvae are eaten in a year. Moreover, women and children eat as a rule numerous lesser meals. In one year the members of one household consume, people say, as many kavambe larvae as would fill a large gourd, that is c. 10 l.

Kavambe is always boiled, never roasted, and also never preserved. When the larva is boiled, the poison is killed, I am told.

One statement in the literature may refer to consumption of Limacodidae caterpillars. Doke (1931, p. 101) mentions that the Lamba eat akawambe on the mutondo tree. Mutondo is the Lamba name for J. paniculata (F. White, p. 443).

A few general statements about consumption of urticant caterpillars occur in the literature.

Dugast says that the Nen (a people in Cameroon) sell a certain kind of caterpillar, emay, in the market in March, July, and August. The larvae are caught alive by the women and killed by embers, because their hairs are irritating for the skin and contact is avoided (Dugast, vol. I, p. 416).

The Nkundo name a kind of edible caterpillar covered with urticant hairs lokoo. The hairs are removed by taking the caterpillar and rubbing it between leaves. It is known about the larva in question that it only feeds during the night (Hulstaert, p. 1219).

The Bemba name a kind of edible caterpillar kabambala. If one of these larvae falls on a pregnant woman, it causes abortion (White Fathers, p. 364). The term kabambala is possibly related to the terms bamba (N), vamba (M), urticate, and if so is the case, it can be concluded that the larva has got urticant hairs.

Some authors report that hairy caterpillars are eaten, without informing whether the caterpillars are stinging ones or not.

The Tumbuka eat a hairy green caterpillar with red head, sutura (Turner, p. 134). The Boa consume bwangbwa, small, black, and yellow caterpillars with white hairs (De Calonne, p. 324 f.). The Nkundo regard wilo, a hairy caterpillar, as edible (Hulstaert, p. 1163). The Fang consider a big red caterpillar with long hairs to be a great dainty (Largeau, p. 691). The Luba eat furry caterpillars (Crawford, p. 313).

Some of the terms and statements given in the literature can be connected with different ones of the hairy larvae I have found in the Kalundu region (see kakomba, lixexe, liungu luanda, lingongolila, and above).

CHAPTER 8

Edible, cocoon-building caterpillars

The genus of the cocoon-builders 1. liungu luanda 2. liungu muzala 3. cimbua.

These caterpillars are distinguished by their habit of building cocoon and remaining in the cocoon for a long time before pupating. Three kinds are known to the Mbunda, two (numbers 1 and 3) to the Nkoya. Each one of the kinds probably corresponds to an entomological species. The Mbunda and the Nkoya eat the larvae 1 and 3. Liungu muzala is regarded as edible by some Mbunda, but they say that nobody eats it, because of its troublesome hairs.

Anaphe venata is annexed after liungu luanda.

Bombycomorpha pallida is annexed after cimbua.

Liungu luanda

Liungu luanda, mongu luanda (M), luanda, maluanda (Y, Nk), lisalia, ma (M, Nk, L, Luv), salia, ma (C), rikunku, ma (N) the larva of Anaphe infracta Walk. (Notodontidae).

Host-tree: Pseudolachnostylis maprouneifolia.

Season: the dry season (c. April–October).

The identification is based on a study of the moth. Larvae in cocoon have been kept. Pupa and imago have been obtained.

Some Mbunda and Nkangala use the term lisalia, but they regard it as an incorrect loan-word from Lucazi or Luvale language.

Lisalia (M), luanda (M), sp. of edible caterpillar (Pearson); masalva (Luv), sp. of edible caterpillar (C. M. N. White 1959, p. 13); salia (C), an edible caterpillar (MacJannet).

The term luanda means web. The larva is named after its habit of spinning threads or spinning a cocoon, the Mbunda say. Various net structures, e.g. spider's web, fish net, are also called luanda. Lisalia, salia, rikunku derive from musalia, mukunku, the host of the caterpillar.

One kind of liungu luanda is known. Most people say that all liungu luanda larvae look the same, but a few state that there are two varieties, one white and one red, living together (see below). The closest relative of liungu luanda is said to be liungu muzala. They are very similar in looks and the only difference is the somewhat larger size of liungu muzala.

The size of the fully grown liungu luanda is estimated to two little finger

joints. The caterpillar is described as rather fat or thick, and red, reddish or white in colour. It is explained that the skin is red with white hairs. Sometimes when a cocoon is opened, one will find some white inhabitants, some red or reddish ones, say my informants. Most persons know that the red or reddish larvae are those which have rubbed off their hairs, or which have rubbed off many of them, but some believe that they are of a special variety.

Whether liungu luanda undergoes collective moulting or not is a matter of controversy. Some people believe that it does not moult at all. Others say that it moults collectively once. Yet others maintain that it moults collectively twice. Those who are of the latter opinion say, that people in general do not know, as they are not interested in the caterpillars while they are still feeding in the trees.

While still feeding in the tree the liungu luanda larva is known to be white in appearance because of its long, white, urticant hairs.

The pupa is described as being small and reddish. Some say that it is light-coloured when newly formed, but that it soon darkens.

Larva, final instar (from cocoon): c. 33 mm long, c. 8 mm broad. Weight c. 1.5 g. Head sparsely hairy. Head, thoracic shield, anal flap chestnut brown. Body light brownish red, with more or less sparse c. 2 mm long whitish hairs. Interspersed blackish hairs, especially on thorax somites and on last abdominal somites. Skin with more or less distinct rows of warts, particularly a dorsal pair on each somite. Warts sometimes still with c. 2 mm long, blackish bristles. Spiracles blackish. Venter light brownish red. In the walls of the cocoon c. 5 mm long whitish hairs are to be found.

The pupa is c. 20 mm long, c. 7 mm broad, brown.

My informants say that liungu luanda lives in the forest, where its host-tree Pseudolachnostylis maprouneifolia grows commonly but scattered in open habitats. Kangali persons informed me that the larva is found on the same host along Kubango river in Angola.

People know that liungu luanda appears once a year and that it lives during a very long time. The caterpillars build their cocoons in the trees after the end of the rainy season, before the beginning of the cold time. Cocoons with liungu luanda larvae are most common before the cold comes, say the villagers. Up to the beginning of the hot season (c. Sept.) there still are cocoons with unpupated larvae. When the rains start, only pupae are found. When the caterpillars first appear, before they build their cocoon, and how long they feed on leaves in the crowns, people do not know for certain. Some persons state that they appear already at the end of the rainy season, others that they are not to be found until when the rains have finished.

Liungu luanda is reported to be distributed everywhere, in Angola in the territories of the Yauma, Mbunda, Nkangala, Lucazi, Luvale, Kangali, Ayisenga, in Zambia in the territories of the Lunda (Shinde), Ndembu, Lukolwe, Nkoya, Mashasha. It occurs at Kalundu.

There are no especially good or bad localities of liungu luanda. One may find it anywhere. But there are good years and bad years. The caterpillars live in families of 10 to more than 100 members, which all keep together in the same tree. In good years these families are very big and can strip their host-trees completely of leaves, and the cocoons are larger and more abundant than in less good years, when mostly only smaller cocoons are discovered. It is reported both from Itezhitezhi, Luampa and Kalundu, that the year 1972 was an unusually rich liungu luanda year. People do, however, not remember which seasons that were good and which that were bad, because, they say, there are always many cocoons.

About the early life of liungu luanda people report:

At the end of the rainy season or somewhat later one can see many small caterpillars with white hairs feeding on the foliage of the musalia tree. They live in a common house where they rest when the sun is hot. Wherever one of these larvae goes a spin-thread comes out of its anus. The stomach of the larva is filled with an almost inexhaustible amount of thread. The caterpillars eat from the different branches in turn. If they change tree, because they have finished the leaves or for some other reason, they march in a long procession, the one after the other, down the trunk to the ground. The leader of the file is the chief or headman. Each larva has its head at the hinder part of the larva in front of it. They leave a track of threads behind. The caterpillars may walk for a whole day, if necessary, to find a new host-tree, whose leaves have a smell that satisfies the leader. When the liungu luanda larvae have grown up and become old, tired and fat, their leader starts to make excursions to find a suitable spot for building a house. One day they all set off for the place he or she has chosen. This place should be hidden for enemies. Any kind of tree will do. Sometimes the larvae build their house near to the ground, sometimes in a fork of branches out of reach for human beings, sometimes they conceal it in a crack or hole in the trunk.

When the liungu luanda larvae arrive at the spot, they crowd together and start to produce threads. By moving their hind part in various directions they build. Some of them build the walls, others the floor, and as the walls rise, they climb up on them and continue. Their hairs are woven into the envelope to strengthen it. The one bites off the hairs of the other. The larvae work by shifts,

so some are always working while others are resting. They prefer to be busy, when the sun is not too strong. In a couple of days the house is completed, because they are very diligent, being anxious to come under cover, before an enemy detects them. Before the outer cover is ready, they are entirely helpless. When also the inner walls and the ceiling are built, the leader creeps out through a special door, protruding like a small cornet, and inspects the whole house, scrutinizing it for holes or cracks or weaknesses. It must be absolutely free from defects. If the leader finds anything that is not all right, a few of the larvae are sent there to repair. When at last everything is irreproachable, the leader returns into the house, and seals up the door with white web. After that none of these caterpillars will ever walk through this door again. The houses are very different in form. It may be round, flat or quite irregular, depending upon its position and upon the taste of its inhabitants. It is coloured like the bark of a tree and is described as being white/whitish/reddish. The size varies considerably. A small cocoon is of a fist's size. Some of them are as big as a child's head. Some, giant ones are big as the thigh of an adult human being.

The liungu luanda cocoon is called cikutungulu, vi (M, Nk, L, Luv), cituku, yi (C), shikuti, bi (N). PEARSON gives the term cikutungulu (Ng), large cocoon containing caterpillars. The Mbunda, Nkangala, Lucazi say that cikutungulu is a derivation from cikutungu, scrotum, and say that the cocoon is named after its form or after its position, hanging under the base of a branch.

When the house is closed and seems to be finished, (it is now that the larvae have worked for a couple of days) they continue the work from the inside. They strengthen the walls and make them thicker and thicker. Further they build pillars of web to prevent the roof from falling down. The rustling from their movements may be heard all the time, far into the cold season. Before the first rains come they grow old, get tired and quiet. Then they turn into pupae.

Often, however, the liungu luanda larvae fail to hide their house from enemies. The string of threads is a conspicuous trail all the way to the house, and an enemy has only to follow it to find the nest with its inhabitants. If it can enter the house, they are all lost. Liungu luanda's worst enemy is the woodpecker, who always is searching the tree-trunks. It pecks a hole in the wall and hauls forward and swallows the larvae one by one, until the house is empty. Another danger is the driver ants (Dorylus (Anomma)), which can enter the cocoon through the smallest, unnoticed crevice. Other enemies are likondolo (Camponotus), kaxumambindu (Crematogaster) and vuzili (Pheidole)—i.e. different kinds of ants (Formicidae, Hym.). But no ant can get hold of the caterpillars, if the house is well-built and tight.

The life cycle of liungu luanda has attracted comparatively much interest. People wonder why so many caterpillars build a common, sealed house, inside which they live for a long time without eating anything, until they at last become pupae and, as people often say, die.

One interpretation is that the larvae give birth to their children, or lay eggs out of which the children are hatched, in the cocoon, when it is finished. The children live in the house until they have grown somewhat, and then they creep out through the door, which after that never more will be opened again. The parents remain in the cocoon to die.

Another interpretation is that the children are born before the house is sealed up while the caterpillars are still feeding in the crowns (this is the most common opinion), or during the first days of building, before the door is locked. Those who take either of these two latter views of the matter explain, that when the leader has barred up the door with web, no ever so small larva can get through it. All the inhabitants are to die.

As a rule also those persons who assert positively that caterpillars develop via pupal stage into butterflies adhere to some of the now mentioned theories about liungu luanda. They maintain that liungu luanda is an exception. Even if other caterpillars become butterflies, liungu luanda does not, I am told. (Compare the sections about cimbua, kanguengue, inamuxo.)

Nevertheless there are some informants who say that liungu luanda larvae, too, develop into butterflies, and that the next generation of caterpillars emanates from these ones. Some of these informants relate how they themselves or others have been present when a cocoon has been opened for a meal, and there have been no larvae but only a lot of swarming butterflies in it. These ones are small and red, reddish or white, I am told. The description coincides rather well with the appearance of the moth, the body of which is covered with brown-red hairs, and the wings of which are predominantly white. On the other hand the larva is often described in just the same way, small, white, reddish or red. When I displayed the actual butterfly (Anaphe infracta), none of my informants connected it with the liungu luanda larva. This is an indication that the butterfly has in fact never been observed, and that the characteristics given are borrowed from the appearance of the larva. Yet there is a relatively great possibility that somebody would find out the connection between larva and butterfly for liungu luanda. If only the cocoon is kept long enough, and if a person is present in the afternoon, when the new-hatched creatures with still folded up wings come creeping out, or later when the moth is ready to fly, the discovery would be a fact.

However, people have mostly consumed the liungu luanda larvae already in September, and they do not pupate until in October. The caterpillars are preferred to the pupae. Especially the old pupae are considered to be dry and insipid. There is, moreover, no great probability that a cocoon would be forgotten, as the supply of relish is poor, and as people know pretty well that they have got in their store houses.

I obtained the first cocoon with larvae June 11. It is light yellow-brown and of unregular form. Whitish hairs are woven into the walls. A grey-white cornet, the mouth of which is closed with white web, is the often mentioned door. The cornet stands distinctly out against the rest of the cocoon, because of its diverging colour. Also the inside of the cocoon is grey-white. Medium size of a cocoon is c. 150×100×50 mm with c. 100 larvae. In a small one of c. 100×60×20 mm there are about 50, in a big one of c. 400×140×70 mm there are about 200 larvae.

The last newly found cocoon with larvae was observed Oct. 3. The first pupa in a cocoon was seen Oct. 5. After that the number of pupae increased for every day. The first butterfly hatched Nov. 6. From the cocoon obtained June 11 c. 90 moths hatched Nov. 6 till Dec. 2. In the beginning only one or two hatched each afternoon, but as the month passed, more and more butterflies appeared in a day. Maximum 17 butterflies in one afternoon. Then there were again fewer and fewer, until at last only solitary specimens hatched. Similar observations were made of two more cocoons.

The moths hatched in the cocoon, and pushed themselves out through the membrane covering the door of the cornet, or, in one cocoon, through a certain spot on the wall. They crept out one by one at four or five o'clock in the afternoon. For a few minutes they moved around, and then they settled down on the cocoon. Here they started to develop their wing-pads, which looked like inconspicuous bags, by pumping. After c. 10 minutes the butterflies assumed their right shape. Then they rested at the same place, until darkness fell, when they one by one flew away. When I displayed new-hatched specimens creeping around or settled down, nobody recognized them as butterflies, but as soon as the wings were developed, everybody did.

The wingspan of Anaphe infracta is c. 50 mm. The wings are white. Forewing with black pattern, giving the wing a checkered appearance.

Most Kangali, Yauma, Mbunda, Nkangala, Lucazi, Luvale, Cokwe, Lunda (Shinde), Ayisenga, Ndembu, Lukolwe, Nkoya, Mashasha eat liungu luanda. It is generally said that pregnant women must not eat it (see below). The Ngangela and Cokwe regard liungu luanda as edible already when it is feeding in the tree

and has reached a length of c. 20 mm. The Nkoya and Mashasha maintain that it is not eaten, until it has started to build the cocoon. Everybody asserts that liungu luanda is best, when the house is closed. The Mbunda, Nkangala, Lucazi, Luvale and Cokwe consider the pupa to be edible. The Nkoya and Mashasha reject it.

Liungu luanda is a savoury caterpillar, but not as nice as cimbua and cikilakila. Most people think that it is too sour, leathery and full of threads when it is still feeding on leaves. When it has worked on building the house for some time, these bad qualities disappear. Now the stomach is empty of excrements and threads and the taste is better. New-formed pupae are regarded as soft and juicy, but later they become tough and dry. Only a few persons say that they eat liungu luanda larvae that they have collected from the foliage while they are feeding, and describe them as fairly nice, even if it is troublesome to get hold of them and to prepare them.

Men, women and children search eagerly for liungu luanda, which is a very important caterpillar. I am told that it is rather easy to catch sight of the feeding larvae in the crowns. When they are discovered, the tree is marked and the place is memorized. Now and then the finder checks the tree to see if the larvae have grown, changed tree, or started to build their house. As soon as one sees that this cocoon-building has started, one knows that it is time to look for more cocoons, too. If the tree is situated very far from the village, the caterpillars are collected, even if they have only begun to build, otherwise one will probably wait till the cocoon is finished. Liungu luanda larvae that are taken from their labours (they are scraped down into a vessel, then) will continue to build in the place where they are put, and make a new house, and so one can store them until they have built enough and become nice to eat. But one must watch them carefully, because the vuzili (Pheidole ants) are troublesome and will consume all the larvae if they get an opportunity. The vuzili can empty the nest in one night. Also the chickens like liungu luanda larvae, so one should avoid placing them on the floor. A collector, who has not already discovered the larvae, has to search directly for the cocoons, or also for the trails of threads that lead to them. These threads are easy to catch sight of. The cocoons are coloured just like the bark and difficult to see. Yet an experienced person can distinguish them at a single glance.

The cocoon is cautiously loosened with the hand or with a knife. If it is out of reach, one can cut down the tree, climb the tree or use a pole to poke it down. People try to obtain the cocoon undamaged, at least if they do not intend to consume the caterpillars the same day. In a complete nest the larvae are pro-

tected from their enemies. It is reported that empty cocoons are rather frequently found. If no sound is heard from the inside of a liungu luanda house, the collector knows that the inhabitants have been eaten by some enemy.

Most cocoons are found in the beginning of the season, I am told. Later in the cold season the nests become rarer. When the leaves come out in the beginning of the hot, moist time, they are almost finished. There are many persons in the Kalundu region who gather them and the forest fires destroy quite a number, explain my informants. The villagers agree that women and children gather the most cocoons. They search in the surroundings up to perhaps 5 kilometres away. When they start to complain that they can not find any more liungu luanda nests, the men will make expeditions to more distant places. Having eaten plenty of liungu luanda larvae in May, June and July, people say in August and September, that now there are not many left, and so they start to wait for cikilakila instead.

The women often report that the supply of cocoons has become scarce. The men go so far away from the villages that they do not compete for the liungu luanda as the women, who stay in the vicinity, do, and so the men generally say that there are about as many cocoons to be found now as formerly. May be the women are right. May be there are nowadays fewer liungu luanda larvae near the villages. Yet there are still cocoons here and there in the musalia trees even at central Kalundu and central Mangango.

It is often said that liungu luanda is eaten so many times during a so long period of the year, that it is impossible to estimate the total quantity. During some weeks one may eat liungu luanda larvae every fourth day. Most men at central Kalundu go searching for cocoons at least once a year. The men of the forest villages say, that they make expeditions for the sake of liungu luanda about 5 times each season. A normal result of such an excursion is 2–5 cocoons, I am told. A lucky collector may find up to 10 and the women gather even more. A large cocoon contains so many larvae that a whole household gets relish for two days.

If one has got a large liungu luanda nest, one tears a hole in its wall and picks out as many larvae as one wants to use the same day. The remaining creatures will soon close the opening again. As a rule people do not keep the cocoons (untouched or opened once) for more than a week. Several persons expressed their surprise at the fact that the caterpillars are as fat after having been stored as when the cocoon is gathered.

There is no need for preparing liungu luanda larvae. They are boiled or roasted as they are.

My informants say that these larvae are never sold on the market.

Most people are of the opinion that if a pregnant woman eats liungu luanda, the child will not be able to leave the womb, because the passage will be shut up. In any case the child, and often also the woman, will die. When a woman finds out or suspects that she is pregnant, she at once gives up eating liungu luanda larvae.

A Mbunda doctor explained that if eaten, liungu luanda larvae cause the womb to shut the exit. Probably, he said, the larvae start to build a cocoon around themselves and the child. A Nkoya doctor declared that a child and liungu luanda larvae develop in a similar way. The child is confined to the womb of the mother just as the larvae are confined to the cocoon. One can hear the child move, just as one can hear the caterpillars move. Yet normally a child can find its way out. Now, if the woman eats liungu luanda, the larvae will close the exit with web, and so the child will die. People in general give explanations of this same kind.

A pregnant woman may eat cimbua, which is also found in a cocoon.

My Mbunda informants say, that they have heard that liungu luanda may be used as an ingredient in a witchcraft medicine, which can kill the foetus of a woman and possibly also the woman herself. The medicine is slipped into the food, drink or tobacco of the pregnant one.

The Nkoya and Mashasha know of a household remedy against nose-bleeding. A liungu luanda cocoon or part of it is burnt over a fire, and the smoke is inhalated. Both Mbunda and Nkoya doctors use smoke from a burning liungu luanda cocoon to stem serious bleeding. The Nkoya doctor may also smear the wound with a mixture of ash from a cocoon, saliva and a crushed root of the mubanga (N) tree.

The Nkangala say that they formerly stemmed bleeding by applying the inside of an opened liungu luanda cocoon over the wound. The bandage was kept in place by a string of bark rope. Nowadays they do, however, not proceed in this way any more, they declare, because the hospital's gauze rollers are much better.

The Mbunda report that the cocoon may be used as an ingredient in a medicine, which is put into the food of the victim, causing constipation, swelling of the stomach and even death, if the malady is not properly treated. A similar medicine is mentioned by both Mbunda and Nkoya informants. This one causes the scrotum of the victim to swell to an enormous size.

Lisalya (Luvale) is available on musalya, Pseudolachnostylis deckendti (=maprouneifolia, F. White, p. 203), April–Dec. (C. M. N. White 1959, p. 13). The butterflies hatched and left my cocoons in the beginning of Nov.

In the literature there are several other statements, which probably refer to Anaphe larvae. It is known that two species of the genus Anaphe are eaten, A. infracta and A. venata. The former is distributed both in rain-forest and in deciduous forest, while the latter is known from Zaire.

HARRIS reports that A. infracta larvae are eaten in many areas in Tanganyika (Tanzania). The caterpillars usually build their common nests in Bridelia micrantha trees. People cook, dry, and powder the larvae for storage (HARRIS, p. 46). The statement that the larvae are powdered and stored appears strange, if HARRIS intends to say, that this is regularly done. An A. infracta cocoon may be kept for rather long time, provided that it is not collected at the very end of the season, and so there will not be any reason for preservation of the larvae, as they can be eaten fresh during several months.

HULSTAERT says that the Nkundo name for Bridelia micrantha Baill. as well as for the edible caterpillar of Anaphe infracta Walk. is bolanga w'okeli. The larvae are collected when their development is almost complete, and stored in a basket indoors, where they build their cocoon (HULSTAERT, p. 203). Even if it is not mentioned here, it is probable that the Nkundo also collect the complete cocoons. In another place (ibid., p. 1059) it is said that the Nkundo collect nests of caterpillars. This very likely refers to Anaphe. The statement that the same name is used both for the host-tree and for the caterpillar seems to be less probable. HULSTAERT (p. 1158) asserts that a caterpillar called lilanga or lilalanga is eaten only by person, whose parents are dead. Lilanga may be a derivation of bolanga, the host-tree of A. infracta. Perhaps lilanga is identical with this larva.

The Tomba term molanga, species of edible caterpillar (MAMET, p. 267), and the Tetela term olanga, species of edible caterpillar (HAGENDORENS, p. 51), which have both the same stem -langa as the Nkundo terms mentioned above, may also refer to the larva of A. infracta.

HANNAN (p. 527) gives the Shona terms rava, dora, sondya, edible caterpillar, bagnet larva, Anaphe. Also HOWMAN (p. 65) and DUNCAN (p. 103) say that the Shona eat the larva madora. GELFAND reports that the Shona call a caterpillar, found in certain trees in the winter, mandura. The larva is boiled, dried, and eaten together with vegetables, and is very useful during times of famine, when it may be used as a medium of exchange (GELFAND, p. 104). The information that the caterpillar is found in the winter speaks in favour of the hypothesis that mandura is the same Anaphe larva, probably A. infracta, as dora. Against the hypothesis that the Shona term dora should refer to Anaphe infracta speaks, however, that BIEHLER (p. 64) says that dora (Shona) is a white-green caterpillar

on musasa. Musasa is Brachystegia randii (=B. spiciformis (F. White, p. 107)) (Biehler, p. 327).

From Gazaland (Moçambique) it is told that Anaphe larvae unlike other caterpillars cause symptoms of illness in certain persons. It is said that of two brothers eating from a dish larvae that have been captured and prepared together, one brother may feel well and the other may, in serious cases be prostrated for 2 or 3 days. The larvae are much liked, and those whom they affect unpleasantly feel their inability to eat them as a misfortune (Bodenheimer, p. 188, fr. Swinnerton). People in the areas I visited reported that they had never heard of any bad consequences of this mentioned kind.

Doke (1931, p. 101) says that the Lamba term umusalya refers to a tree and also to a caterpillar on this tree. Umusalya may be the same tree as musalia (Ng). Doke (1963) does not give this term umusalya. Ulutuku is said to be a species of caterpillar (Doke 1963, p. 26). The same term refers also to a cocoon (ibid., p. 31). The word ulutuku seems to be related to cituku (Cokwe) and shikuti (Nkoya) which are special terms for the cocoon of A. infracta larvae. Also the Lulua term lukutu, which according to De Clercq (p. 146) denotes a cocoon, and the Kongo term kutu, which according to Laman (1936, p. 344) denotes a cocoon or a caterpillar, are perhaps special designations for the Anaphe cocoon. The Bemba word lituku, which refers to a kind of larva causing itching (White Fathers, p. 621), is maybe a term for Anaphe larvae. The Bemba term na musangati denotes a kind of edible caterpillar (White Fathers, p. 225). Musangati is the Bemba name for P. maprouneifolia (F. White, p. 441).

From the rain-forest area several terms are given, which may refer to the cocoon of Anaphe. The Beo name a big cocoon or nest of caterpillars lekoto (Gérard, p. 179). The Ngombe have a word for a nest of caterpillars in the form of a sack (Rood, p. 123). Both the Tomba and the Nkundo name a nest of caterpillars nkuku (Mamet, p. 267, Hulstaert, p. 1059). The reason for distinguishing a cocoon with a special term is probably that its inhabitants are edible.

In Kwango the Cokwe eat caterpillars called mapatula. The same caterpillars are called makutia by the Pende. The host-plant is tshimbunzi (Cokwe), mumbunze (Pende). The larvae are of medium size and build a common cocoon in the host-tree, which occurs in the gallery forest. They are rare but may accidentally appear in outbreaks. They are collected in March (Lefèvre & Daems, table facing p. 6). The statements may refer to Anaphe infracta.

Tessmann (vol. II, p. 190) informs us that edible caterpillars, nkun, found in web, are tabu for young strong Fang people. Nkun is probably a general term for caterpillars. It is possible that this statement has Anaphe cocoons and

Anaphe larvae in view. It is also possible that it refers to caterpillars, which make cocoons one by one in the trees, or to caterpillars (as kaluluulu, see the section about this larva), which produce a lot of web, while they are still feeding on the leaves, but which are not known to build any cocoons at all.

Anaphe venata Butler (Notodontidae)

This caterpillar is densely hairy, dark brown, decorated with two dorsal rows of white dots. It lives gregariously and moves about in processions. The nests are pear-shaped and made of white webbing, about 15 cm by 10 cm in size. The hairs of the larvae as well as the nests cause severe skin irritation (WYNIGER, p. 124 f.). Distribution: Congo (WYNIGER, p. 125).

Host-tree: Kola-nut (Cola acuminata Beauv.) (WYNIGER, p. 125), Sterculia bequaertii D. W. (Sterculiaceae) (HULSTAERT, p. 221).

The Nkundo name the larva of Anaphe venata boluku, which term also is said to be used for the host-tree, S. bequaertii. Boluku is an edible caterpillar (HULSTAERT, p. 221). Probably this caterpillar is collected in a similar way as the larva of A. infracta.

Liungu muzala

Liungu muzala, mongu muzala (M), lisala, ma (Nk, L, Luv), sala, ma (C), -(N) kind of caterpillar.

Host-tree: Dialium engleranum.

Season: the beginning of the dry season (c. April–May).

I have not seen the caterpillar.

People say that liungu muzala is named after its host-plant, muzala (musala). Sometimes it is connected with the word muzala (Luvale), hunger. It seems to be less probable that this derivation is correct, as the Mbunda word for hunger is njala.

One kind of liungu muzala is known. My informants report that there are no varieties. Liungu luanda is regarded as liungu muzala's closest and only relative. The sole difference between them is the somewhat larger size of the latter. Liungu muzala is not very well-known, especially not by young people. Most old persons have at least heard of it. Being reckoned a close relative of liungu luanda, it is often compared with this one and also often confused with it. Most habits ascribed to liungu luanda are now and then ascribed also to liungu muzala. Those statements according to which the two kinds of larvae differ are probably more reliable than those statements according to which they are simi-

lar, especially as the differences as a rule are pointed out by persons, who are more acquainted with liungu muzala.

Liungu muzala is described as being small, but bigger than liungu luanda, with red skin and urticant white hairs. The young larvae are certainly like the old ones, people say, and the pupa is presumably like the liungu luanda pupa.

Those who are familiar with liungu muzala report that it is to be found in the forest, where it lives on Dialium engleranum trees. Most people maintain that it feeds upon the same leaves as liungu luanda does, but my more knowledgeable informants say that this is wrong.

Once a year, during the dry season, at the same time as liungu luanda is first to be seen, liungu muzala appears (c. April–May).

In Angola liungu muzala is known from the territories of the Ngangela and Cokwe. Some persons report that it is common, others assert that it is rare. Whether it occurs in Zambia or not is a matter of controversy.

Most old people say, that liungu muzala lives in groups, that it does not spin threads wherever it goes, as its more famous relative does, and that, when it is getting old, it builds a white house just for itself. The different liungu muzala larvae belonging to the same family build their small houses close together in a cluster on the tree-trunk. According to another opinion the liungu muzala larvae make common cocoons, exactly as liungu luanda larvae do.

Some Mbunda, Nkangala, Lucazi, and Cokwe say that liungu muzala is edible, but that absolutely nobody will ever eat it, because its hairs are very troublesome and cause severe urtication in the mouth and in the throat. Most of my informants maintain that it is traditionally inedible, but that it has happened that people have mistaken it for liungu luanda and have tried to eat it. Everybody says that the liungu muzala pupa is inedible. The reason why it is not eaten is unknown.

It is not clear why people distinguish liungu muzala. Perhaps it is traditionally regarded as edible and eaten, in spite of the embarrassing hairs. Perhaps its similarity with liungu luanda has occasioned it to be so often confused with this larva, when seen from a distance, that people have come to remember it and name it.

Cimbua

Cimbua, vi (M, Nk, L), limbua, ma (M, Nk, L), kakandu, tu (M, Nk, L, Luv, C, N), mbua, ma (C), kuyu, ma (C), cisambasamba, yi (C) kind of caterpillar.

Host-trees: Swartzia madagascariensis, Brachystegia type longifolia, Julbernardia paniculata.

Season: the dry season (c. April–Oct.).

I have seen the full-grown caterpillar in its cocoon.

The term mostly heard in colloquial language is kakandu. The Mbunda sometimes say limbua. Yet cimbua is pointed out as the proper Mbunda name of this larva. The Lucazi maintain that limbua is the correct Lucazi name. The Cokwe as a rule consider mbua to be a Ngangelaism and give either kakandu or kuyu as the proper term. A couple of Cokwe persons instead state that the correct word is cisambasamba. Often Mbunda, Nkangala, Lucazi persons observe that kakandu is a commercial term, originating from the Luvale language, and that it (except by the Luvale themselves) should be used only for the larva in its cocoon, as it is sold on the market.

Limbua. imbua (va, zi, vi) (Ng), sp. of edible caterpillar, the prefix zi refers to a Niemba word (Pearson); tukandu (Luv), sp. of edible caterpillar (C. M. N. White 1959, p. 13); sambasamba (C), an edible caterpillar (MacJannet).

Most of my informants have no idea about the etymology of the words cimbua, limbua, mbua. They often suggest that the caterpillar is named after its habit to build a cocoon. Some people report that the names are derivations from the term for the puff adder (Bitis arietans), cimbuambua, and say, that the two animals resemble each other, both being short and thick and having a similar pattern of colour. A Lucazi vaka ntunda person further developed this theory, saying that the larva stabs as a puff adder so that the sound mbua is heard. When the larva is irritated, he declared, it bends its body as a cross-bow, and then it strikes, just as the puff adder is supposed to do.

The Cokwe derive kuyu from cikuyu, small box or case. The larva is named after its cocoon, they explain. Cisambasamba is either said to be a derivation from kusamba, season of the year, c. May (the larva is to be found at this time), or from musamba, the host-tree Brachystegia (type longifolia). The Nkoya believe that kakandu is derived from kukandura in the general sense to scratch in the ground, or in the more special sense alluding to how poor adult persons or children rake over the soil to find remaining ground nuts or ground beans, when the owner of the field has already harvested as much as he wants. The caterpillars are routed out by scratching, and when people have collected cimbua larvae under the crown of a tree, the ground with heaps of thrown up soil looks like a field, that has been searched through by poor people, explain my Nkoya informants.

One kind of cimbua is known. People report that there are no varieties. Nobody knows of any close relatives of cimbua, but liungu luanda is mentioned as a distant relation, as it, too, builds a house in which it lives for a long time. Yet the two caterpillars are very different. Each cimbua larvae builds its own nest, while the liungu luanda larvae build a common cocoon.

Cimbua is described as being as long as a finger joint and stout. Some persons say that it is patterned like a puff adder. Others report that it is speckled in black and white or yellow.

According to one opinion cimbua moults once; according to another it grows without moulting. Some people state that it is covered with white hairs as long as it is feeding in the crown; others say that it is glabrous all the time.

People do not know of cimbua's pupation (see below).

Larva, final instar (in the cocoon): c. 20 mm long, c. 5 mm broad. Weight c. 0.5 g. Head brown, thoracic shield, anal flap black with sparse c. 5 mm long, whitish hairs. Body striped in black and yellow with sparse c. 5 mm long, whitish hairs. Dorsum black. Lateral area yellow with longitudinal black line over spiracles. Spiracles brown with a black ring surrounded by a yellow ring set in an irregular mm-broad black stripe. Venter black with yellow median stripe between prolegs.

Cimbua lives in the forest. The host-trees most frequently pointed out are Swartzia madagascariensis and Brachystegia type longifolia, but also Julbernardia paniculata is said to be a host of cimbua larvae. The Nkova sometimes state that cimbua also eats the leaves of Copaifera baumiana.

The caterpillars make their cocoons after the end of the rainy season, before the beginning of the cold season. Cocoons with cimbua larvae are to be found during the cold time, until the weather becomes hot, when they disappear, say my informants.

People say that cimbua is common in some areas, lacking in others, throughout the territories of the Ngangela and Cokwe in Angola. It is reported to be common in the country of the Southern Mbundu. In Zambia cimbua is known to occur to the west and to the north-west of Kaoma District, in Lozi and Lunda areas. It is also to be found here and there in the Nkova and Mashasha territories. None of my informants states that it occurs at Kalundu. The closest known locality is said to be on the Luampa river, to the south of Luampa mission.

Cimbua larvae live in a crowd among the leaves, people say. As the larvae grow, they scatter more and more, but usually several caterpillars are feeding on one and the same leaf. When they are full-grown, they decide to build each one its house. Some people describe how a cimbua larva bites off the stalk of a leaf, how larva and leaf fall to the ground together, and how the creature digs a hole, pulls down the leaf and wraps itself up in it, and then closes the opening. Others say that the caterpillar already in the tree wraps itself up in the leaf, whereupon it bites off the peduncle, falls to the ground and digs itself down. In the soil it

seals the seam. The idea that the cocoon is made of a leaf is based on its great similarity with a withered leaf. Some of my informants, however, report that cimbua makes its cocoon of something that comes out of its anus, and that it behaves just as liungu luanda, when it is building.

According to the general belief cimbua does not develop into a butterfly but dies and is transformed into dust after having lived in its house for a long time. It is said, that people often find empty cocoons, the inhabitants of which have shriveled up, so that nothing but grains of sand is left. The numbers of cimbua larvae fluctuate greatly, say the villagers. Certain seasons these caterpillars completely strip their host-trees of leaves. Sometimes there are none or just a few to be found. The outbreaks are not so massive as those of kakomba, though. Usually the cimbua larvae occur in the same places from year to year.

I obtained cimbua cocoons in the Kaoma market July 15. They contained living larvae. As late as August 22, cocoons were sold in the market at Mangango. At the end of October several larvae were still alive in opened cocoons, but a few were dead. Towards the end of November I only found dead, dry larvae, when I examined them. This, despite the fact that I kept some of the cocoons in damp soil from the date when I received them.

Cocoon c. 20×13×7 mm, rounded, ovoid, with a flat bottom. Dark brown. One end somewhat flattened with c. a dozen processes ordered in one row, similar to a seam. In the walls whitish hairs are found.

Most Yauma, Mbunda, Nkangala, Lucazi, Luvale, Cokwe, Ayisenga, Lunda (Shinde), Ndembu, Lukolwe, Nkoya, Mashasha eat cimbua.

Usually people eat cimbua larvae, which have already locked themselves up in cocoons. Some people also collect the caterpillars, while they are feeding in the trees. A larva should be at least 5 mm long in order to be regarded as edible, I am told.

Cimbua larvae taken from the cocoons are considered to be the best of all caterpillars. Their fatness, the nice taste and the softness of their skin are praised. The aroma is compared with that of honey or nectar. The taste is compared with that of fried winged termites. Feeding cimbua larvae are not that savoury, yet they are somewhat better than kavambe, even if they, according to the common opinion, are leathery. Those who maintain that the cocoon is spun of thread produced by the caterpillar itself explain, that feeding cimbua larvae taste like leather, since they are full of thread.

Often the cimbua caterpillars attract attention already when they are very small, because they eat so much, that branches or whole trees suddenly stand leafless. If one has found a cimbua family, one remembers the place, and then

one just waits, until it is time for the larvae to bury themselves in the ground. When one comes to the place in order to collect them, one searches under the crowns, to find out where the droppings are biggest and thus originating from the grown-up larvae, and here one sifts the soil and brings forth the cocoons.

Men, women and children gather cimbua in areas where it occurs. At Kalundu people say that the localities of cimbua are too far away, and that nobody would think of going out on the hunt for it from these villages. But some of my informants say that they have earlier lived in places, where there has been plenty of cimbua larvae, and they can tell about the collecting and about the catches.

Under the crown of a tree, in which a normal family of cimbua larvae have lived, one may gather as much as a small gourd full of cocoons (i.e. about 1–2 l), these persons report. Sometimes the yield may be the double amount. A skilful collector can pick as much as 100 litres of cocoons during a season.

Some persons prefer to boil cimbua. Then the caterpillars are first put on the embers for an instance. The cocoons get frail in this way and can easily be broken. The larvae are pulled out and thrown into the pot. Mostly, however, people prefer to roast the larvae in the cocoons. A number of cocoons are kept on the embers for a while, until the shells are devoured and the caterpillars slightly roasted. The shells give the larvae a very nice smoked taste, which becomes more distinct, if one adds a few grains of salt.

My informants report, that there is no need to preserve cimbua, because it keeps alive and fat in the cocoon, until one wants to use it. The gathered or bought cocoons are stored in a gourd somewhere in the house or in the granary. I am told, that they may be retained for about two months. Nobody, people at Kalundu say, knows if they can possibly be kept for a yet longer time.

Cimbua is easy to store, because no one except human beings can steal it out of the cocoon. Even the notorious vuzili (Pheidole) ants are unable to find a hole in the shell, through which they can enter.

Cimbua is said to be the without comparison most often marketed kind of caterpillar in the Nkoya and Mashasha territories. Only cimbua larvae in cocoons are found in the markets. They are in great demand. In Kaoma District cimbua is nowadays sold very occasionally by traders travelling from market to market on their way to the Copper-Belt or Lusaka. At Kaoma the market is best, and so they mostly stay there longer than at the smaller places as at Mangango. Formerly hawkers used to wander about in the villages selling cimbua larvae, people say, but nowadays they try to get to the big towns as soon as possible.

At Luampa and Mangango the price for two fistfuls of cocoons is 5 ngwe. At Kaoma the price is doubled and the amount lesser. In Lusaka half a "Kaoma

fistful" costs 10 ngwe. I am told, that in the Lozi country there are several professional Luvale gatherers of cimbua, and that in other areas, where there are plenty of cimbua larvae to be found, Luvale traders buy cimbua cocoons from the villagers at the local price in order to sell them at high price in town.

Kakandu (Luvale) is available on munyumbe, Isoberlinia (=Julbernardia, F. WHITE, p. 125) paniculata, and musamba, Brachystegia longifolia, April–Sept. (C. M. N. WHITE 1959, p. 13).

Bombycomorpha pallida Dist. (Lasiocampidae)

The Pedi name the caterpillar ngwana mamahlwehlwana. It is c. 35 mm long, c. 10 mm broad. Weight c. 0.45 g (QUIN, p. 108). The larva is black with two narrow yellow lines on each side of the body. It is clothed with orange-coloured hairs (SMIT, p. 230). The host is mohloehloe, an unidentified plant (QUIN, p. 109). The caterpillar feeds on Rhus sp. but is more abundant on the pepper tree (SKAIFE, p. 161). The pepper tree, Schinus molle L., has been introduced from South America and planted e.g. in Lusaka as a decorative tree (F. WHITE, p. 214). The caterpillars of the 2nd generation (the first occurs in Nov.–Dec.) reach full size in April or May before winter. They hibernate as larvae inside their c. 17 mm long cocoons and emerge as moths in October (SKAIFE, p. 162). SMIT (p. 230) adds that the cocoons are brown and tough. QUIN reports that according to the Pedi one generation occurs in July. He describes the larva as having orange-coloured hairs and says that the edible stage is the fully developed larva. QUIN further adds that the supply is insufficient to warrant preservation (QUIN, p. 109). The larva is considered as most popular caterpillar relish. The supply is usually scanty. (Ibid., p. 232.)

QUIN's description of the larva seemingly refers to specimens prior to cocoon-building. The hibernating caterpillar is likely naked or nearly so. The hairs are rubbed off or woven into the cocoon. SKAIFE gives a picture of a cocoon with a few hairs protruding from the wall (SKAIFE, p. 162).

Altogether there seems to be more than accidental connections between B. pallida and cimbua. It may be added that the Bemba term na mulalusha is the name of an edible caterpillar (WHITE FATHERS, p. 225). Mulalushia (Bemba, Bisa) refers to Rhus spp. (F. WHITE, p. 438).

CHAPTER 9

Inedible, urticant caterpillars with edible pupae

The lingongolila genus 1. lingongolila.

These caterpillars are distinguished by their enormous size and very urticant hairs. The Mbunda know of three or more kinds without special names. The Nkoya know only of one kind. The Mbunda regard the caterpillars as inedible, the pupae as edible. The Nkoya do not eat either the larvae or the pupae. Gonometa postica, G. rufobrunnea and Mimopacha aff. knoblauchi are annexed.

Lingongolila

Lingongolila, ma (M), lingongolili, ma (M), livambakixi, ma (M, Nk), livambakisi, ma (L), limbandimbandi, ma (M, Nk, L, Luv, C), liwau, ma (Luv), kucimukula, -(C), kucimukondo, -(C), kababure, tu (N) big caterpillars of the family Lasiocampidae (e.g. Catalebeda, Pachypasa).

Host-trees: Julbernardia paniculata, Pterocarpus angolensis, Guibourta coleosperma, Brachystegia spiciformis, Brachystegia longifolia, Erythrophleum africanum.

Season: all the year or during several periods.

I have identified two species, the larvae of which are denoted as lingongolila larvae, by studying the moths. One of these belongs to the genus Catalebeda, one belongs to the genus Pachypasa. The descriptions given by my informants indicate that lingongolila corresponds to at least two genera, Catalebeda and Pachypasa. I have reared the two kinds of lingongolila larvae in the final instar (from a length of c. 60 mm). Pupae and imagos have been obtained.

Limbandimbandi is the term most frequently heard among the Ngangela and Cokwe. Old Mbunda people say that lingongolila or lingongolili is the correct Mbunda word, and that limbandimbandi is a loan-word from the Lucazi. Middle-aged Mbunda people are mostly not sure of which one of the two terms that properly belongs to Mbunda language. Some of them solve the problem by saying that the two terms have different referents (see below). As a rule young people only know the term limbandimbandi. The terms livambakixi, livambakisi are known only to some persons, who say that they are not in use nowadays. According to one opinion these names do not refer to the caterpillar but to the cocoon. According to another opinion they are used for lingongolila larvae in a certain context only, or else for a certain kind of lingongolila larvae in a certain context. The Cokwe maintain that limbandimbandi is a loan from Ngangela language, and that kucimukula, and according to some few persons also

kucimukondo, is a proper Cokwe name. Most Cokwe say that all these larvae in question are called kucimukula. Some maintain that there are two different kinds, kucimukula and kucimukondo respectively. Most of my Nkoya informants report that kababure is a correct name for this larva. Some persons, however, assert that kababure is a Mashasha word, and that the larva should be called mbambe in Nkoya language. Mbambe is the general Nkoya term for unknown, urticating caterpillars.

Lingolila, livambakisi (Ng), sp. of poisonous caterpillar, limbandimbandi (Ng), sp. of caterpillar with irritant hair (PEARSON); kuchimakula (C), non-edible caterpillar (MACJANNET).

Some people say that lingongolila(-i) is a derivation of mungolila, stripe, line. The caterpillar is striped, they explain. Others report, that it is a compound of ngongo, groaning, and lila, cry, and think, that the larva is named after the sounds that are caused by a person's coming into contact with the hairs of the caterpillar. A few persons assert, that ngongo or ngo instead is the sound of a strike. The lingongolila larva butts like a cow or snake, so that a swishing sound is heard, when it hits its goal. The Lucazi regard limbandimbandi as a derivation from mbandu, sore. The hairs of the larva cause sores, they explain. Livambakixi(-kisi) is considered to be a compound word. Vamba is either said to be the word vámba, sting as caterpillar, circumcise, or vàmba, cover a house with rugs. The latter theory is explained in the way that the larva builds a house of web. Kixi (kisi) is derived sometimes from mukixi (mukisi), ancestor, sometimes from likixi (likisi), masked dancer of circumcision ceremonies. All my informants agree that the larva is named like this because of its role during the circumcision ceremony (see below).

Kucimukula is said to be a compound of kuci, beard, and mukula, Pterocarpus angolensis, the host-tree of the most common kind. Kucimukondo is a compound of kuci, beard, and mukondo, Julbernardia paniculata. These larvae have beards, the Cokwe explain. Liwau is reported to be a derivation from wawula, scorch. Kababure is derived from kubabura with the same meaning. Some Luvale and Nkoya say, that the red hairs of the caterpillar look like flames of a fire, and that this is the reason for the name.

My Ngangela and Cokwe informants often hesitate, when I ask how many kinds of lingongolila larvae there are. Old people, especially the old Cokwe persons, with whom I talked, often know of three kinds, and think that there may exist yet more kinds. Middle-aged persons seldom know of more than two kinds. Some young persons do not even distinguish and remember lingongolila at all. The Nkoya report unanimously that there is only one kind.

Many of my more knowledgeable informants say that there are different varieties within each kind of lingongolila larvae. One member of a family may be more red, another more white, they say.

The Ngangela and Cokwe think, that lingongolila is not particularly closely related to any other caterpillar. Sometimes cingoyi is mentioned as a relative. Sometimes lingongolila is grouped together with kazanguzangu larvae. Young people, who do not eat lingongolila pupae, and who are not very familiar with the tradition, may even name it kazanguzangu. The Nkoya classify it together with kazanguzangu larvae, which are all, just as this caterpillar, urticant and inedible, I am told.

The most well-known kind of lingongolila is said to be of middle finger size and striped in red and black. It lives in colonies on Pterocarpus angolensis, where it builds a village, people say, of white houses (cocoons) among the twigs.

The second kind of larva is said to be of middle finger size and striped or coloured like the bark of a tree, with big tufts of hair round the head, according to the Ngangela, with a beard, according to the Cokwe. It is found on Julbernardia paniculata, and builds its house in the ground.

The third kind of larva is said to be of the same size as the others. Some individuals are white, some red. Often they live together. They feed on the leaves of Guibourta coleosperma, and build a village of white houses on the trunk of the host-tree.

Other lingongolila larvae on other trees, as well as these just described kinds of larvae in the cases when the informants in question do not distinguish them that clearly, are said to be striped, red or white and to build their houses in clumps or villages on the boles of the trees. My most knowledgeable informants do not agree whether those lingongolila larvae which feed on other trees should be considered to belong to the already mentioned kinds, or whether they should be kept separate and regarded as special kinds.

The Nkoya are unable to give any closer description of any of the kinds. They only know that these larvae are very big.

The lingongolila larvae moult once or twice I am told. The pupa is said to be big and black.

Larva (Catalebeda jamesoni B.-Bak.), final instar: c. 90 mm long, c. 13 mm broad. Weight c. 6 g. Head dark brown. Thoracic shield and anal flap blackish with violet streaks. Body with numerous short and thin black, brown, red, violet and white streaks. White-grey tufts of hair with pink and pale blue tips. Dorsal tufts c. 3 mm long in two rows. Lateral tufts c. 10 mm long in one row. Dorsum with numerous c. 3 mm long black setae with interspersed rusty red or white

hairs, the tips of which are flattened. A row of such white hairs border the anterior part of the thoracic shield. Host-tree Pterocarpus angolensis.

The C. jamesoni larvae make their white, pear-shaped, c. 80×30×30 mm big cocoons in groups among the twigs. The walls are covered with numerous protruding black bristles. The single pupa in the cocoon is c. 40 mm long, dark brown. Weight c. 3 g.

Larva (Pachypasa bilinea Walk.), final instar: c. 100 mm long, c. 15 mm broad. Weight c. 7 g. Head dark brown. Body humpbacked, partly glabrous with numerous thin and short grey, white, green, brown and black streaks. Particularly anterior part of dorsum with groups of c. 3 mm long black bristles. Lateral part of body, especially the first segments, with tufts of up to c. 30 mm long light grey hairs, which surround the head in form of a powerful beard. Host-tree Julbernardia paniculata.

The Pachypasa larvae pupate in the soil, where they build a cocoon of earth, dry leaves and web some centimetres down. Pupa similar to the C. jamesoni pupa.

Most people identified displayed specimens of these two kinds of caterpillars as lingongolila larvae. The Nkoya, many Ngangela persons and also some Cokwe persons were, however, unable to point out their respective host-tree. The most well-known of the larvae is C. jamesoni, which was also relatively often connected with the right host.

Lingongolila is said to occur in most types of forest. The Ngangela and Cokwe point out Pterocarpus angolensis, Julbernardia paniculata, Guibourta coleosperma, Brachystegia spiciformis, Brachystegia longifolia, Erythrophleum africanum as host-trees. My Nkoya informants and sometimes others too think that it feeds on all kinds of trees.

Some Ngangela and Cokwe say that the lingongolila larvae appear four times a year, at about the same time as likese (c. Oct.–Nov.), at the same time as cingoyi (c. Feb.), at the same time as liungu luanda (c. April) and during the cold season (c. June–July). Most people are, however, content to say that the caterpillars occur many times a year. A few persons say; that they know that C. jamesoni appears twice or three times (the three first of the just mentioned periods), and that P. bilinea comes once or twice (at the same time as likese and perhaps yet once later in the rainy season). The Nkoya believe that these larvae are present all through the year, except maybe during the cold season.

In the territories of the Ngangela and Cokwe in Angola and in the territories of the Lunda and Nkoya in Zambia lingongolila is common. It is to be found at Kalundu.

My Ngangela and Cokwe informants report that lingongolila larvae live in big families of 100 members or more. As a rule they do not completely strip their host-trees of leaves, because they do not eat very much, but sometimes they change tree, and then they may be found creeping around on the ground. These caterpillars have no enemies, I am told, as nobody wants to touch them. All creatures fear their stings. Even the driver ants (Dorylus (Anomma), Formicidae, Hym.), which attack all living and dead flesh, avoid the lingongolila larvae.

The most well-known lingongolila larvae, those living on P. angolensis, i.e. C. jamesoni, assemble, the Ngangela and Cokwe say, when they get old, among the twigs to build their village. Each caterpillar builds its own house of threads, goes into it, and seals up the door. The walls are furnished with stinging hairs, and so intruders are kept away. People often compare the lingongolila cocoon with the palisades strengthened with spiny branchlets, that were formerly common around the villages, protecting them from trespassers like hyenas. Many of my informants believe that the lingongolila larvae, just as liungu luanda and cimbua, live for a long time in the cocoons before they pupate or die. Others know that they turn into pupae after a few days.

The Nkoya do not know any special about lingongolila's habits.

I obtained the first specimens of C. jamesoni in the final instar Oct. 23, the first ones of P. bilinea also in the final instar Nov. 4. From the end of January to the beginning of February I obtained larvae of a second generation of these species, all being in the final instar. Pupal stage lasted c. 30 days. In July I observed big, hairy, white caterpillars of Lasiocampidae habitus in the foliage of an evergreen tree, confirming the statements of some informants that lingongolila larvae are to be found also in the cold season.

All my informants agree that lingongolila larvae are inedible. It is said that not even a starving person would think of collecting and eating them, as their hairs cause almost unendurable pain.

The pupa, however, is traditionally edible for the Mbunda, Nkangala, Lucazi, Luvale, and Cokwe, according to what most people report. A few Mbunda persons maintain that the Mbunda must not eat it, and some Lucazi vaka ndonga assert that only the Lucazi vaka ntunda take interest in it. My Yauma informants say that the Yauma regard the lingongolila pupa as inedible. The Nkoya and Mashasha reject it.

Most of the villagers at Kalundu say that they have given up eating lingongolila pupae, but that they or their parents used to collect them in Angola. After considering the matter a little, many of them report, however, that old persons

eat the pupae. Some of the old ones agree, and say that they like these pupae very much, but that they do not often get them nowadays. Others report that they do not want to eat them. According to one opinion everybody used to eat the pupae formerly, but this custom is disappearing, and only some old people retain it. According to another opinion the lingongolila pupae have always been reserved for the old members of the family. Only in one forest-village I was told definitely that its inhabitants regularly eat lingongolila pupae every year. Everybody is allowed to taste them, these informants reported, but mostly they are reserved for old persons with bad teeth. Those who have given up eating lingongolila pupae say e.g. that the Lozi laugh at persons who eat them, that the pupae are too few in Zambia, or that one can get sick from eating them in Zambia. Refugees, newly arrived from Angola, say that they have heard that in Zambia it is considered to be uncivilized to eat lingongolila pupae.

The lingongolila pupa is as nice as other pupae, according to those who eat it.

The inhabitants of the village, where lingongolila pupae are eaten, as well as some other informants say: Lingongolila pupae are discovered in passing, e.g. by persons searching for other kinds of caterpillars. Men, women, and children used to gather them, but young children were warned not to touch them. The cocoons of C. jamesoni are very easy to catch sight of. When it came to collecting P. bilinea pupae, people had to remember or mark the tree, in which they had found larvae, and to go there now and then in order to see if the larvae had buried themselves in the ground and pupated yet. In gathering the pupae one must be careful not to touch the soil and the webs around them, I am told, because the urticating hairs, dropped when the larvae pupate, are still urticating.

The cocoons of C. jamesoni are either opened at once with a stick or a knife, so that the pupae can be picked out and taken home to get roasted (boiled) later on, or else put whole on the fire and burnt off, so that the pupae get roasted. The pupae of P. bilinea are roasted (boiled) as they are.

From the same tree a small gourd (c. 0.5 l) may be filled with pupae, say my informants. Especially during the end of the rainy season, before the beginning of the cold season; people used to eat lingongolila pupae several times. The roasted pupae were eaten either as relish for proper meals or as snacks. They were not preserved and not marketed, I am told.

People tend to forget about the usefulness of lingongolila. Nowadays the larva is principally known for the sake of its scorching hairs. It is the most feared one of the urticant caterpillars. People compare the hairs with fire, or the Ngangela and Cokwe with the knife of a circumciser. The almost unendurable pain that is

caused by contact with them lasts for days. The skin swells, blackens and peels off. A hand may swell to its double size.

Lingongolila has a habit of butting the anterior part of its body in various directions, when it is irritated. My informants explain, that it turns its head to listen if any intruder is approaching. If it hears a person coming, it keeps quiet, and then suddenly it strikes. It butts just as a cow, I am told. This behaviour has contributed to lingongolila's bad reputation for aggressiveness.

Doctors and peasants agree that there is no remedy against the urtication of lingongolila hairs.

It is known that lingongolila is an ingredient in medicines, which can kill a person or cause severe pains. Doctors say that they can counteract the effects of such a medicine by making a patient sit in the smoke of a burning lingongolila larvae. People also say, that an enemy, a witch or a dissatisfied ancestor can send and introduce a lingongolila into one's body. The doctor can suck such an introduced larva out of the body again by cupping. One doctor told me, that he has to show his patient in a concrete way that he has cured him or her, and so he displays a lingongolila, pretending that he has removed it out of the patient's body. Actually, he explained, the herbal medicine, which he makes his patients drink, contains the curing ingredients, but nobody would believe him, if he said that it is that simple, and so people would call him a cheater and refuse to pay him. When people want to describe a severe, stinging pain, particularly in the chest or stomach, they may say that they feel like having a lingongolila inside.

One Nkoya doctor reported that the boxers in the towns use a medicine with lingongolila applied to the fists.

Formerly lingongolila played a role in the male circumcision ceremonies in Angola. It is said that lingongolila larvae were taken with bark gloves and put one on each one of the boys, who were staying in the circumcision camp. The boys had to stand motionless without crying or even showing themselves afraid, until the caterpillars decided to leave them. According to some informants the larvae were instead thrown against the bodies of the boys. Others maintain that the boys were lashed with whips on to which lingongolila larvae were tied. One person asserted that the boys were circumcized with the aid of lingongolila larvae, which burnt off the foreskins.

In Zambia lingongolila is not used in any of these ways, I am told. Some people say, that it still is in Angola. My Ngangela and Cokwe informants explain, that at the time when the boys stay in the camps nowadays, that is in June–August or thereabout, there are no lingongolila larvae to be found in Zambia. In Angola plenty of them occurred at the right time. This sounds convincing, but I

noticed a group of lingongolila larvae in July. Possibly the reason is that the ceremonies nowadays are considerably reduced in time, and that accordingly several phases have been discarded. The camps are mostly held during the school vacations, which last only for one month. The contents of the rite are said to vary from area to area. At Kalundu every Ngangela and Cokwe child of proper age attends the camp, I am told. The Nkoya and Mashasha do not circumcize and have no initiation for boys.

A Mbunda doctor said, that the reason why lingongolila larvae were used in the rites was that the caterpillars just like the children gather in a group, when they moult, and then leave their worn-out skins to become adult.

I have examined the truth of the rumours, that lingongolila larvae will sting at once one comes in the neighbourhood of them, by keeping my reared specimens in my hand and by allowing them to creep upon my body. If a larva is put down cautiously on the skin, so that it is not irritated, the bristles do not hurt. If, however, it is thrown on to the body, it will surely (I have not tried this) cause severe pain, as the bristles easily break off and introduce themselves into the skin.

Some information is given in the literature about species belonging to the family Lasiocampidae.

Gonometa postica Walk. (Lasiocampidae)

The caterpillar is large and hairy and known to Pedi as pisa. It is not eaten. One generation occurs in January and February. The edible pupa is c. 35 mm long, c. 17 mm broad. The weight is 2.1 g. The cocoons are found on twigs. They are picked with a stick and rubbed on the ground to remove bristles. Host-trees are Acacia campylacantha, Peltophorum africanum, Gymnosporia senegalensis. The pupae are not preserved (Quin, p. 108).

Gonometa rufobrunnea Auriv. (Lasiocampidae)

The caterpillars of this species are to be found in the northern Transvaal, where they feed on Colophospermum mopane and often become abundant. The larvae pupate on the trees making tough cocoons, which are sometimes used for making necklaces and belts. Small stones are placed inside them, which rattle as the wearers dance (Smit, p. 230). My informants at Kalundu have never heard of such a use of lingongolila cocoons or else of cocoons made by caterpil-

lars. Certain dry fruits filled with rustling kernels, or empty tins with e.g. seeds or pebbles have a corresponding function at Kalundu. (Compare chap. 9, vol. 1.)

Mimopacha aff. knoblauchi Dew. (Lasiocampidae)

In his Nkundo dictionary Hulstaert informs us that only certain tribes and the pygmies eat likengele, the caterpillar of this species, which is very urticant (Hulstaert, p. 1149).

There are also some other statements in the sources, which probably refer to urticant caterpillars of the lingongolila type.

Thus namumpembele (Bemba) is a big, greyish caterpillar, causing painful itch when touched (White Fathers, p. 941). Mhene (Shona) is a hairy caterpillar, Pachymeta robusta (Hannan, p. 369). Mhene is probably the same word as mene (Zezuru), caterpillar not eaten (Biehler, p. 64). Isangolankema (Tomba) is an enormous, urticant caterpillar (Mamet, p. 268). Lisangolankema (Bangi) is a kind of caterpillar with poisonous long hair, which stings like nettles and is said to kill monkeys (Whitehead, p. 155).

Masumbiotepe (Bira) is a big caterpillar with bristles, which can kill small animals and monkeys with its poison (Brisson, p. 89). The Beo call a hairy caterpillar, which causes irritation when it is touched, chumbakema (Gérard, p. 148). C. M. N. White informs us that during the Luvale circumcision rites a novice may not remove an irritating hairy caterpillar which gets on to him, but must wait for a keeper to do so. If he was regarded as an insolent child in the village, the keeper will leave the caterpillar to irritate him before removing it (C. M. N. White 1961, p. 8).

CHAPTER 10

Inedible, urticant caterpillars

The kazanguzangu family. This family includes hairy, urticant and inedible caterpillars (see chap. 4, vol. 1). It comprises two genera, the kazanguzangu genus and the nienie genus. The Nkoya do not know of nienie, which according to Ngangela and Cokwe point of view is the only member of the nienie genus, but classify it, if they happen to come across it, with the kazanguzangu larvae. The Ngangela and Cokwe sometimes call nienie a kazanguzangu, e.g. when they warn a child not to touch it, or when they tell a stranger that this is a useless, stinging larva. Also edible, urticant caterpillars are occasionally said to be kazanguzangu larvae, when a child is admonished to avoid them. This is especially the case with lingongolila, which is now and then considered to belong to a special genus in the kazanguzangu family. However, only ignorant persons, who are little acquainted with the traditions, classify lingongolila in this way, say my more knowledgeable informants, who emphasize that according to the tradition lingongolila is a useful larva, the pupae of which are nice to eat.

The kazanguzangu genus as a principle all unknown, urticant, inedible caterpillars in practice all unknown, hairy, inedible caterpillars.

As a rule people think, that there are many different kinds of kazanguzangu larvae (of unknown kazanguzangu larvae). (See also chap. 4, vol. 1.)

Kazanguzangu

Kazanguzangu, tu (M, Nk, L, Luv), lizanguzangu, ma (M), livavuvavu, ma (L, Luv), livambi, ma (Luv), cambi, yambi (C), mbambe, -(N) numerous kinds of inedible caterpillars with urticant hairs belonging to numerous species of Lepidoptera.

Host-plants: miscellaneous plants.

Season: throughout the year.

I have seen various types.

The Ngangela usually say kazanguzangu.

Livamba, livavuvavu (Ng), sp. of poisonous caterpillar, kasangusangu, livavuvavu (Ng), sp. of large and poisonous caterpillar (PEARSON); chambi (C), generic name for non-edible caterpillar; kind of caterpillar with long hairs (MACJANNET).

Kuzangula means to urticate, and that is the reason why the larvae are called kazanguzangu larvae, explain my informants. Livavuvavu is said to be a derivation from vavula, singe, scorch, burn. Livambi, cambi and mbambe are derived from vamba, amba, bamba, urticate. All these caterpillars have urticating hairs, I am told. The Nkoya say, that mbambe has received its name, because it has the

same kind of hairs as mbambe, a hairy snake, which moves jumping between the tree tops. When the snake sleeps and an unlucky person passes the tree, so that the wind blows from the snake against him, hairs from the body of the snake will come drifting and bore into his skin, say my Nkoya informants. If the whole body is affected, or if the victim has bad blood, he will die. There is nothing to do. No medicine helps. If the snake is awake, when one passes, it will sting instantaneously, and one will be dead in the next moment. The hairs of the caterpillars itch as the hairs of this snake, say the Nkoya.

The descriptions of the mbambe snake with the dangerous hairs may have some substratum of truth. From South Africa SMIT says, that the hairs of the caterpillar Euproctis terminalis are easily shed, and that these microscopic hairs can be blown about by the wind, travelling several kilometres from infested places. They can penetrate ordinary clothing. Affected parts of the body swell, and the swelling may last for seven hours. SMIT says, that those who have experienced this urtication will never forget it (SMIT, p. 208 f.).

People know that there are many kinds of kazanguzangu, but nobody can give any closer information about any of them. They are of various sizes and colours, I am told, and they develop in about the same way as other liungu larvae. Yet quite a number of persons, who say that the liungu larvae are transformed into pupae and then into butterflies, say, that the kazanguzangu larvae pupate and then die.

Displayed specimens of hairy caterpillars were said to be kazanguzangu larvae as soon as they were not recognized as belonging to one or another of the known kinds of hairy larvae.

There are kazanguzangu larvae on all kinds of trees, shrubs and herbs throughout the year, I am told. They are said to be common except during the cold season. They often are found wandering about e.g. in the village yard.

All kazanguzangu larvae are considered to be wretched, useless, urticant creatures, but nobody believes that they voluntarily attack their victims or that they are aggressive in any way. One has nobody to blame but oneself, when one gets stung. One should be careful not to touch them. None of my informants, however, is in the habit of killing kazanguzangu larvae. Some of them say that they usually kill a larva, that has burnt them. Others say, that why should they punish it? It is not its fault that one has been careless.

Normally a person gets stung several times a year, I am told. It is particularly troublesome when the fields are to be weeded. The larvae are almost invisible among all the herbs.

People who have got burnt by kazanguzangu usually try to pick out the hairs.

This is, however, impossible. The doctors as well as people in general report that there is no remedy for the consequences of contact with kazanguzangu hairs. The burnt spot of the skin darkens, swells and aches for several days. It is difficult both to work and to sleep, because of the pain, the villagers maintain.

Children are more often burnt by kazanguzangu than adult people. They are not on their guard.

In the literature many terms for urticant caterpillars are offered. It is obvious that these conspicuous larvae have attracted a great deal of attention, especially from the compilers of dictionaries. The words in question are translated in various ways, e.g. poisonous, stinging, burning, or irritant caterpillar or larva. Sometimes it is made clear that the unpleasant effects are caused by the hairs. In most cases the exact meaning of the terms is uncertain. Several alternatives are open when it comes to a word, which is translated e.g. by stinging caterpillar. The word may refer to all kinds of urticant, inedible caterpillars, to a specific group of such ones, to only one kind of urticant, inedible larva, or perhaps to an urticant, edible one.

In the translations of some of the terms below nothing is said about urtication. Yet they seem to be derivations from words meaning urtication, urticate, burn ... (from bamba, vava, or from words related to these ones).

The Nkundo use efambe as a general term for urticant caterpillars (Hulstaert, p. 486). The Ngombe call species of caterpillar with stinging hairs ebambe (Rood, p. 62). Ebambi (Bangi) is a kind of inedible caterpillar (Whitehead, p. 109). Guthrie (p. 93) translates the Lingala term ebambi by caterpillar and the term mbinjo by edible caterpillar. Lingala is a lingua franca.

Tshibambule (Lulua), inedible caterpillar (Gabriel, p. 9), kambambale (Sanga), caterpillar (MB, p. 9), kabambale (Hemba), caterpillars creeping in procession (Colle, vol. I, p. 29).

Ebai (Tomba), non-edible urticant caterpillar (Mamet, p. 268). Elo (Jaunde) is a caterpillar with spiny hairs, which is not eaten (Heepe & Nekes, p. 50). Elop (Bulu) is a caterpillar with stinging hair (von Hagen, p. 233). (The Jaunde and the Bulu are two Fang groups.)

Alves (p. 1185) informs us that -pya (Southern Mbundu) is a caterpillar causing irritance. Chimpyashya (Kaonde) is a small, light-coloured caterpillar with extremely venemous spines or hairs (Woods, p. 29).

Chibavi (Tonga), caterpillar, which causes great irritation if it touches human skin (Turner, p. 6). Ciyabwe (Nyanja), a hairy caterpillar causing itching (MCJ, p. 46). Zivava mupimbiri (Zezuru), non-eaten caterpillar (Biehler, p. 64).

Ebinyaboya (Nkore), wooly caterpillars (Taylor, p. 15), ikinyabwoya (Ruan-

da), hairy caterpillars (Hurel, p. 381), ikinyabwoya (Rundi), caterpillar with long hairs (Ménard, p. 45), ikinyabwoya (Rundi), hairy caterpillar causing itching (van der Burgt, p. 102), shichisuntaboza (Ila), hairy kind of caterpillar found on trees; contact is said to cause intense irritation (Smith & Dale, vol. II, p. 226), sicisunta-boza (Ila), sicisuntaboya (Lenje), vwiya (Tonga), hairy caterpillars which are detested by everybody (Torrend, p. 95), icisuntawoya (Lamba), sp. of caterpillar (Doke 1963, p. 26). Some of these groups do not eat caterpillars and can not be expected to make finer differentiation among the hairy ones. The terms mentioned above belonging to their languages can be supposed to refer to hairy, urticating larvae in general or to hairy larvae in general. These groups are the Nkore, the Rwanda, the Rundi, and the Ila.

The nienie genus 1. nienie.

Nienie

Nienie, vi (M, Nk, L), nienie, va (M, L, Luv, C), nienie, -(C), -(N) the caterpillar of Euproctis producta Walk. (Lymantriidae).

Host-plant: Ricinus communis L. (Euphorbiaceae), castor oil plant.

Season: before and during the rainy season (c. Sept.–March).

The identification is based upon a study of the moth. Larvae (the last three instars) of a length from c. 5 mm have been reared. Pupa and imago have been obtained.

The term nienie is often used in the singular. My informants disagreed about the formation of the plural.

People say that nienie is named after its exceedingly nasty, stinging hairs, but mostly they have no idea of the derivation of the term. A few persons report that it is derived from nieniela, start to cry or sob. Children, who are playing on the ground, sometimes start to cry, as it seems without any reason at all. Then they have got burnt by nienie, these informants explain.

One kind of nienie is known. People say that there are no varieties. Nienie is mostly said to be related to the kazanguzangu larvae, i.e. to the unknown, urticating caterpillars. Sometimes it is said to be a kazanguzangu. The Nkoya, who do not distinguish or name it, classify it as such a one.

Nienie is described as being very small and thin, about as long as a nail and striped. On its back it has two very conspicuous humps. All over the body there are white hairs.

People know that nienie moults once or twice, and that its appearance is similar throughout its life. Nobody pretends to have seen the pupa, but it is assumed that it is very small and that it is buried in the ground.

Larva in the two instars before the final one similar to larva in final instar, but more hairy.

Larva, final instar: c. 20 mm long, c. 3 mm broad. Body with yellow and brown stripes. Dorsal area with conspicuous, rounded, black tubercles, similar to humps, in two rows. Each somite with one pair. One anterior pair of tubercles more pronounced. Particularly lateral area with whitish, c. 5 mm long hairs.

Pupation occurs in the soil.

Displayed larvae of a length from c. 10 mm were identified by most Ngangela and Cokwe. Smaller specimens were classified as kazanguzangu larvae. People believe that the white hairs cause the urtication, but SMIT (p. 208) reports that the tubercles are covered with microscopic poisonous hairs.

Nienie's only host is the castor oil plant, say my informants. This small tree is commonly found around the houses of the Angola immigrants. It is rarely seen in the Nkoya villages. The reason why the Nkoya do not know of the caterpillar is probably that they are not very well acquainted with its host.

Some people say that nienie comes several times a year, both before and during the rainy season. Others maintain that it is to be found throughout the rainy season, and that it does not at all disappear in the interval.

The larva is reported to be common both in Angola and in Zambia in the areas of the Ngangela and Cokwe, Lunda and Nkoya.

The nienie larvae live in large families, and often they strip their hosts completely of leaves. When they are young, they keep close together. Then they scatter. When one of them has finished a leaf, it sinks down with the aid of a thread to a new leaf or to the ground, the villagers say. Nienie is considered to be very active. It is creeping around all the time, I am told. Sometimes it even goes astray into a house.

I obtained quite a number of groups of nienie larvae from Sept. 26 until Oct. 17. Pupal stage lasted c. 3 weeks.

People say that nienie is a wretched creature: Suddenly one feels something creeping on one's leg. Hitting it one finds that it is a nienie, and that one has got hairs both in the hand and in the leg. The skin swells, and the pain is so unbearable, that some persons take a knife when they have been burnt, and cut off the skin on the afflicted place. The children are warned for the larva. As a rule people do not control the nienie caterpillars, but if too many villagers have been burnt, somebody will perhaps cautiously gather the leaves on which the larvae are feeding, and throw them into the fire.

CHAPTER 11

Stalk boring and allied caterpillars and other larvae

The Nkangala, some Mbunda, some Lucazi, and some Cokwe regard kanguengue and likundulu as liungu larvae. The Nkangala classify kanguengue together with the edible caterpillars, and consider likundulu to be closely related to kanguengue. Those Mbunda, Lucazi, and Cokwe who think that kanguengue and likundulu are liungu larvae bring them together into a category of their own, which is often placed on the same level as (edible) liungu larvae, kazanguzangu larvae, and inamuxo. Other Mbunda, Lucazi, and Cokwe as well as the Nkoya hold the view that kanguengue and likundulu are closely related kinds of kalongolo insects. See chap. 4, vol. 1.

The kanguengue genus 1. kanguengue 2. likundulu.

These larvae are distinguished by their habit of boring in or cutting off living plants. Likundulu is by the Ngangela and Cokwe often thought to be a stage of development of the kanguengue species, as is also the earwig. When people think of this connection between the latter and kanguengue, they call it, too, kanguengue. The Mbunda as well as the Nkoya know of both kanguengue and likundulu. The Nkangala regard kanguengue but not likundulu as edible. According to other Ngangela, Cokwe, and Nkoya kanguengue and likundulu are both inedible.

Laphygma exempta and L. exigua are treated after likundulu.

Kanguengue

Kanguengue, tu (Y, M, Nk, L, C, N), kangwengwe, tu (Luv), cengocengo, -(C), mbungu, -(N), rungunghwa, -(N) larvae of caterpillar and maggot habitus, principally those boring in cultivated plants; numerous species of Lepidoptera and Diptera (e.g. Busseola fusca, Noctuidae, Lep.).

Host-plants: numerous (see list below).

Season: all the year except the cold season.

I have seen various caterpillars and maggots, denoted as kanguengue larvae, and identified two of these species, Busseola fusca Hmps. and Heliothis obsoleta F. (Noctuidae, Lep.) by studying the moths. The larvae in question I have reared. Pupae and imagos have been obtained. The descriptions given by my informants indicate that all kinds of stalk boring larvae in cultivated plants are regarded as kanguengue larvae.

Kanguengue (kangwengwe) and mbungu are terms that are used in colloquial language. In the Ngangela and Cokwe languages kanguengue (kangwengwe)

denotes stalk boring larvae in all kinds of cultivated and also in wild plants. In the Nkoya language kanguengue mostly refers to stalk boring larvae found in maize, while the term mbungu refers to stalk boring larvae found in finger millet and in other cultivated and wild plants. Yet most Nkoya positively assert that the kanguengue larvae in maize are of the same kind as the mbungu larvae. When the mbungu outgrows e.g. the millet stalk, it moves to the more spacious maize stalk, I am told (see below). A few old Cokwe and Nkoya maintain that kanguengue is a Ngangelaism. The proper terms in their languages are cengocengo respectively rungunghwa, they report.

Kanguengue (M), kanguengua (Ng), sp. of insect (eats maize (PEARSON); kangengwa (Ng), worm of grain (BAIÃO).

The etymology of the terms is said to be unknown, but people think that the larvae are named after their habit to bore in or destroy maize and millet, etc.

As a rule people maintain that there is just one kind of kanguengue, just one kind of stalk boring larva. They have noticed that there are many varieties, looking rather differently, but explain that these differences are due to dissimilarities in stage of development, in environment or in constitution of the individuals. The Ngangela and Cokwe are most familiar with the kanguengue larvae found in maize, and on second thought often remember that some stalk boring larvae, young ones or ones with special taste, live in other plants, too. Old Nkoya people say that formerly the Nkoya were best acquainted with mbungu, found in finger millet, but that when the Angola immigrants arrived they taught the Nkoya that kanguengue larvae living in maize are old or else big mbungu larvae. Nowadays the Nkoya are perhaps more familiar with the kanguengue in maize than with the mbungu, I am told.

Some of my informants, mostly young people, say that there are two or more kinds of kanguengue. They distinguish between those larvae that are similar to caterpillars (liungu larvae) and those that are similar to maggots (livuno larvae), or between larvae found in maize, larvae found in millet, etc. Quite naturally the Nkoya relatively often make the latter distinction, saying that kanguengue and mbungu are of different kinds. Yet my more knowledgeable, mostly old, informants report that this is wrong.

Whether maggots in wild fruits should be counted as kanguengue larvae or as livuno larvae is a matter of controversy. The majority of my informants think that they are kanguengue larvae. All livuno larvae feed on meat, they explain.

Likundulu is said to be kanguengue's closest relative. According to the Nkangala lixanjungu and kanguengue are also closely related, as they are both small, smooth-skinned, striped, and edible. Now and then somebody maintains that

likoloto (larva of the family Cerambycidae, Coleoptera) as well as other boring insects are in the same family as kanguengue. They all bore, people explain. Those who regard kanguengue as a liungu think that it is related to all other liungu larvae. Others emphasize that kanguengue bores in the stalks of plants, while the liungu larvae feed on leaves, and that they accordingly must be different.

Kanguengue is described as small and smooth, striped or plain, white, whitish, blackish, reddish or coloured like its host-plant. These descriptions refer primarily to kanguengue larvae found in maize, which are further said to be similar to liungu larvae. The kanguengue larvae living in finger millet, bulrush millet, sorghum etc. are said to be similar to those living in maize or else to be more or less similar to livuno larvae (maggots). I give an account of what people say about the appearances of the kanguengue larvae found in different kinds of cultivated plants further on in this section.

The Nkangala recognize displayed specimens of those kinds of kanguengue larvae living in maize that they eat (see below). If an inedible caterpillar, which resembles such an edible larva, is shown to a Nkangala person, who eats kanguengue, he or she will classify it as a kanguengue and say, that this one is eaten. This happens as well when the caterpillar in question is fetched from the foliage of a tree, or if it is taken from a stalk of a plant. Kanguengue larvae, which are not similar to the edible ones, are not recognized, but are said to be unknown liungu larvae, or maggots. On such larvae the Nkangala react just as my non-Nkangala informants react on all kinds of kanguengue.

If a typical, smooth, stalk boring caterpillar is shown to a Mbunda, Lucazi, Cokwe, Nkoya person, he or she will classify it as a liungu and ask about its host-tree, taking for granted that it has been gathered out of the foliage. No stalk boring caterpillar was identified as a kanguengue or even associated with one, when it was presented to members of these ethnic groups. If I, however, told, that the larva was fetched from the stem of a cultivated plant, everybody at once reported that it was a kanguengue. In the same way people classified an unknown, small, smooth caterpillar, gathered from the crown of a tree but said to be taken from e.g. a maize stalk, as a kanguengue.

When, in a similar manner, a typical maggot (larva of fly, Dipt.) or some other larva resembling a maggot (e.g. a larva of a bee (Apidae, Hym.) or a larva of a weevil (Curculionidae, Col.) was displayed, it was classified as a livuno (livuno is the general term for maggot, larva of fly), never as a kanguengue, as long as I did not say, that it originated from a cultivated plant. As soon as I stated that it was, I was told that it was a kanguengue.

In the field people do not hesitate to classify larvae of liungu or of livuno type, found internally in plants, as kanguengue larvae.

It is obvious, that people are little acquainted with the appearance of kanguengue. These larvae are primarily distinguished on account of their habits. The reasons why the stalk boring larvae are so poorly differentiated are probably that there are so many kinds, that the larvae are rather similar in appearance, small, and inconspicuous, that they all live in about the same way, that none of the types are very common or else really troublesome. The agricultural customs do not promote outbreaks of pests. The damage caused by these insects is little striking and appears insignificant compared with the ravages of e.g. rain, storms, elephants, birds, locusts or rodents.

There are among the Ngangela and Cokwe different opinions about the life cycle of kanguengue. Generally, however, it is said that kanguengue is born as or that it hatches out of an egg into a small livuno (maggot). It grows, moults, and turns into a liungu larva (or into a larva that is similar to a liungu, according to those who do not classify kanguengue with the liungu larvae). Some people maintain that this transformation from livuno to liungu is gradual. A number of persons report that the livuno-like kanguengue is first transformed into a likundulu, which crawls about cutting off young plants, waiting for them to grow enough for it to bore its way into one of them as an adult kanguengue. As the plant springs up, it then proceeds upwards.

Some of my informants think that when the seeds harden and the stalks wilt, the kanguengue larvae dies after having laid eggs or born young. A few persons say that the kanguengue mother lives for some time to take care of the children, and that they may be seen near to her, covered by a web shelter. Many of my informants believe that the young livuno larvae creep down the stalk into the soil to hide from the cold.

According to the common Nkoya theory the old kanguengue lays eggs in the grains of finger millet. When these are sown and germinate, the eggs hatch. The young kanguengue livuno creeps into the growing stalk, where it starts to bore and feed.

According to a view which is held by many Ngangela and Cokwe the grown-up kanguengue turns into a kalongolo insect. Some maintain that the metamorphosis runs its course via pupation, others say that they know that the larva just changes gradually. The pupation, say the advocates of the former idea, takes place in the stalk of the attacked maize plant, or in the ground. The pupa is described as being small and black. The insect, which at last comes out, is brown with a yellow or red spot, alternatively with yellow or red wing rudiments. At its

hinder part it has two horns or teeth. It is an earwig, that is referred to (see kambandamukue). Many persons do not know any other name of the earwig than kanguengue, kangwengwe, cengocengo, or else they have not realized that the kanguengue earwig is the same creature as the kambandamukue earwig.

The theory about the transformation of the kanguengue larva into an earwig is not to be found among the Nkoya, as far as I have been able to establish. Among the Ngangela and Cokwe it has gained strong support by the fact, that people have noticed how the in latter years more commonly cultivated cabbage is much liked by the earwigs, which live here and there between the cabbage blades. The earwigs are so many, that people have found it natural to connect them with the kanguengue larvae, which are also numerous in the cabbage-cultivations.

Both the kanguengue larva and the kanguengue earwig can breed, according to several persons.

A couple of Mbunda and Cokwe informants suppose that the kanguengue larva pupates and turns into a butterfly.

Kanguengue is said to be an inhabitant of the forest, dambo and cultivation, where it bores in plants of various kinds, both wild and cultivated ones. It is to be found all through the year except during the cold time (c. June–July). A kanguengue can stay all its life in the same plant, but normally it will now and then feel a craving for wandering, bore an exit hole, descend to the ground by night and creep away to another plant in the vicinity. If the forest is cleared, the larvae leave their vegetals and creep to the adjoining forest. When the maize is sown, the larvae wait until it has grown big enough. At times one or another of them passes through the field during its nightly wanderings to see how thick the plants are. If they are sufficiently big, it bores into a stalk at ground level by excavating a tunnel with its teeth. Its principal food is the sweet liquid of the plant. It takes a mouthful of vegetable material, chews it for a while, sucks out the liquid and spits out the dry remains. While kanguengue eats, the plant grows in height and width, and the larva mines its way upwards. When the ear is formed it bores into it in order to devour the green grains. Often it spoils the whole cob, before it is satisfied. Whenever the tunnel becomes too full of droppings, kanguengue bores a hole in the stalk and turns out the excrements. Mostly it throws them out above the leaf axils, where small heaps of wet droppings may be found. Sometimes several larvae can be found in the same plant. As many as ten have been found together, I am told. Then the observer knows, that the plant must be very sweet. As a rule kanguengue prefers thick plants with plenty of space, but different individuals have different taste. Some eat only the stalk,

others only the cob or ear. But most of them are omnivorous. The reason why it only moves from one plant to another at night is that it is afraid of its enemies. In day time the drongo (Dicrurus adsimilis) and other birds fly over the maize fields looking for kanguengue larvae. When a bird catches sight of a larva pushing droppings out through a hole, it swoops down, places itself on the plant and picks out the larva, if it is still within reach of the beak, which is often the case. Otherwise the only enemies are the driver ant (Dorylus (Anomma)) and the vuzili ant (Pheidole) (Formicidae, Hymenoptera), which sometimes invade the plants and consume the inhabitants of the stalks.

The Nkangala traditionally eat kanguengue larvae from maize plants. None of the other ethnic groups regard them as edible. Today, I am told, only some Nkangala eat them. The reason for this can be traced to the influence of the other Angola peoples, who all well know of the Nkangala custom in question, and who ridicule it, saying that it is disgusting and uncivilized to eat kanguengue larvae. Those Nkangala who live scattered in the villages of the other peoples as a rule deny that they take any interest in the nasty caterpillars, but often their neighbours report that they doubt the truth of this denial. In Nkangala villages people are more willing to confess that the kanguengue larvae are eaten.

All kanguengue larvae in maize, which are c. 25 mm long or more are considered to be edible, the Nkangala say.

Not even those of my Nkangala informants who said that they eat kanguengue larvae distinguished them into different kinds or were able to give any more detailed descriptions.

Larvae of many entomological species of Lepidoptera and Diptera are known to bore in maize. I checked several maize fields in January and February, and found solitary infested stands but no massive damage. Two kinds of caterpillars boring in the maize I collected and reared. Their imagos were identified as Heliothis obsoleta F. and Busseola fusca Hmps. (Noctuidae, Lep.). Larvae of both these species are eaten by the Nkangala.

The larva of Heliothis obsoleta is c. 25 mm long, dark green with pale stripes. It attacks foliage, upper parts of stalks and ripening grains in the ears of maize. The larva of Busseola fusca is c. 25 mm long, whitish. It attacks the stalks of maize. Many bore-holes may be seen, where it infests a plant.

Further I noted plants with partly destroyed leaves, with bore-holes and with inflorescences encased in web.

Displayed larvae of Heliothis obsoleta and Busseola fusca were, as I have already mentioned, identified as edible kanguengue larvae by most of my Nkangala informants.

Those who eat kanguengue state that it is a very savoury larva.

Traditionally it is mostly women and children who devote themselves to collecting kanguengue larvae, but sometimes Nkangala men, too, search for them and gather them. I am told that the collector should check the axils of the maize plants to see if there are any fresh droppings. If one finds fresh droppings, one knows that kanguengue lives in this plant. The droppings should be so big, that one can conclude that the larva is old enough to be eaten, otherwise one has to wait until it has grown. If one thinks it is of edible size, one finds one of the holes, widèns it cautiously with a knife or some other sharp, pointed object and wriggles the larva out. In the same way all the holes in the stalk and in the ear are opened. If one is lucky, one will find larvae in several of them.

At least nowadays the Nkangala mainly collect kanguengue caterpillars from their own cultivations. The Mbunda and Lucazi say that formerly the Nkangala habit of gathering kanguengue in their neighbours' cultivations caused many complaints, as the collectors damaged the plants.

A fistful of kanguengue larvae is the average result of a search, say my informants. A couple of times a year one can make such a catch, I am told. The caterpillars do not need preparation. They are eaten boiled or roasted.

Everybody knows that kanguengue is a pest that destroys maize plants. People explain that it consumes the ripening grain in the cob or spoils the ear, thus preventing the grains from developing. According to the general opinion the caterpillar's boring in the stalk does not work any harm. People do not think that kanguengue in any way weakens the stalk so that the plant will fall, or so that the ear will be small or inferior. When I ask about these matters, my informants declare that the wind is a great nuisance, felling many maize plants. The sand soil does not give the roots any firm hold, they say. After a storm one will have to replant the stands, where they have tumbled over. But kanguengue is not guilty of this. The one to blame, beside the wind and the loose sand, is probably the vole or the wire-worm (Elateridae, Col.), which gnaws at the roots of all kinds of plants, and perhaps also some other animal feeding on roots, I am told. Unhealthy, poor roots are often said to be the cause of weakness of vegetals. Nor have my informants noticed harm to the leaves of maize, worked by kanguengue. Traces after feeding insects on leaves are normal, and nobody thinks of them or wonders what creatures that have been there. It does furthermore make no difference even if all the leaves of a plant are finished, the villagers assert, new ones will soon sprout.

People say that they now and then find a few plants with kanguengue larvae in their fields, but that there never are very many. During the middle of the rainy

season, at the time, when the different kinds of maize have reached a height of c. 0.5 m, the larvae appear in the maize plants, they report. Then it stays in the maize until it is harvested. The Nkangala, who search for the caterpillars in maize, quite naturally observe more specimens than persons belonging to the other ethnic groups. These latter say that mostly there is not one single kanguengue to be found in their cultivations. Yet some year, especially when a field is sown for the first time, there are many. This means that the peasant in question has had bad luck in his choice of site for his cultivation. Too many kanguengue larvae lived in the place.

When there are many kanguengue larvae in a field, it is necessary to control them, say my informants. If a peasant checking his plants finds that there are droppings and holes of kanguengue in too many of them, he should try to remove them with the aid of e.g. a knife, without damaging the plants. The larvae are wriggled out of their holes and then crushed or thrown on the fire. But most people report, that they do not bother about the kanguengue attacks, if they are not really severe. Nobody has ever gone hungry because of the doings of kanguengue, I am told. Many a peasant has never seen any reason for struggling with these larvae and trying to get rid of them.

The habit of weeding and keeping the cultivations free from everything but the useful growing plants indirectly operates to control kanguengue. Maize stalks and roots are pulled up and burnt after the harvest, as a rule before the beginning of August. Maize stubble is never left in the soil. None of my informants pretended to have thought of the circumstance that these customs should have any importance for the occurrence of kanguengue. Smit (p. 213) informs us that the larva of Busseola fusca hibernates in the base of the stalk. Thus it is obvious that attacks of this caterpillar are prevented by the precautions mentioned.

Survey of kanguengue larvae in plants cultivated at Kalundu

1. *Maize (Zea mais)*

Concerning kanguengue larvae in maize, see above. Maize is a staple crop grown by every household at Kalundu. The Nkoya originally grew a few varieties of maize, generically named shingombe. An early maturing variety was grown in moist soil at the edge of the dambo. It is now extinct, say my informants. The principal Nkoya variety had two-coloured violet and whitish grains and is now very rare. One or two single plants may be found here and there. These kinds of maize were displaced by a variety with dark red grains, introduced by the Mbunda, and named mundele by the Mbunda as well as by most Nkoya. The Nkoya say that the reason for the adoption was that the Mbunda maize yielded the double harvest or more compared with the old Nkoya varieties. Also this

kind of Mbunda maize is nowadays very rare. I found a few plants in Nkoya fields at Kalundu, none in Ngangela or Cokwe fields in the region. Today Ngangela, Cokwe, and Nkoya peasants grow varieties with white or yellow grains introduced by the authorities or adopted from the Luvale. The Ngangela, Cokwe, and many Nkoya use the term civuale for these kinds. The authorities encourage the peasants to grow maize for sale. During later years the importance of maize is increasing.

2. *Finger millet (Eleusine coracana)*

The Nkoya commonly know that mbungu (N), looking like livuno larvae, bores in stalk and ear of finger millet, and that it destroys the corns, when it bores in the ear. Some years it used to be abundant and could spoil parts of the cultivation, but it never damaged so much that people were worried. Finger millet was a traditional staple crop of the Nkoya. It was displaced by bulrush millet introduced by the Mbunda, because, my Nkoya informants say, it is much less toilsome to grow bulrush millet, and yet the yield is many times higher. As the yield is higher one can rest content with cultivating a smaller area, and so the work is still easier. The Nkoya say, that finger millet is no more cultivated in the Kalundu region. In spite of the advantages of the new crop many an old Nkoya person longs for the times of the finger millet, as the beer brewed of its corns was nicer than any other beer, I am told.

3. *Bulrush millet (Pennisetum)*

A few of my informants report that kanguengue larvae looking like livuno larvae bore in bulrush millet, attacking the stem and the ear. The great majority maintain that no kanguengue is ever found in this kind of crop. However people complain that the wind sometimes breaks the stalks. Probably larvae have mined the stem and weakened it in at least some of these cases.

In some few bulrush plants I noted the presence of acephalous-apode larvae in the ear and a few holes in the stalk.

Bulrush millet is a staple crop grown by every household at Kalundu. According to a Nkoya tradition, which was not confirmed by any Mbunda informant, the Mbunda women kept seeds of bulrush millet in their hair, when they destitute of most material goods arrived in the Mangango area, where they at once prepared fields and sowed their dear corns.

4. *Sorghum (Sorghum)*

Some people, mostly elderly ones, know that kanguengue larvae looking like livuno larvae attack sorghum, bore into the stalk, and destroy the head. About as many of my old informants assert, that there is no kanguengue to be found in sorghum plants, and that the only enemy is the wind, which sometimes breaks off the ripening ears. It is very likely that the damage to some extent depends on mining larvae weakening the resistance of the stalk.

Traditionally an important crop, the importance of sorghum diminishes more and more. Today it is cultivated in small patches by some elderly people. The reason for the fact that most villagers do not take interest in growing it is, I am told, that people, after having guarded the ripening crop of bulrush millet against birds, do not want to start keeping watch over the sorghum crop, which ripens later. Those who still grow sorghum do it, because they want the corns for making beer.

Formerly the Nkoya cultivated aboriginal Nkoya varieties of sorghum with brown seeds. All these varieties are now extinct, say my Nkoya informants. Immigrant forms of sorghum with bigger white corns and twice as big heads are grown instead.

5. *Cassava (Manihot esculenta)*

A couple of persons assert that they have seen kanguengue larvae similar to livuno larvae mining in cassava roots. Most people say that they are absolutely sure that no kanguengue attacks cassava.

Today cassava is a staple crop grown by all households at Kalundu. Before the arrival of the immigrants the Nkoya grew a few varieties, all bitter, as minor crops. These are no longer cultivated, being inferior to those of the Ngangela and Cokwe.

6. *Sweet potato (Ipomoea batatas)*

Some people say that they have found small, white kanguengue larvae similar to livuno larvae, surrounded by a dark meal mining in tubers. Sweet potato is mostly grown by middle-aged and old Nkoya in dambo cultivations, but also in fields in the forest. Also a few Ngangela and Cokwe households cultivate some (see liungu kandolo). The Nkoya have always been growing sweet potato, they say, but the old Nkoya varieties have disappeared and been supplanted by forms with higher yield brought in by the immigrants.

7. *Livingstone potato (Plectranthus esculentus)*

Attacks of kanguengue unknown. Livingstone potato is sparsely cultivated, mostly by old Nkoya persons. It is an original Nkoya crop, formerly grown commonly in the dambo, now supplanted by sweet potato and cassava.

8. *Yams (Dioscorea)*

A couple of Nkoya say, that yams sometimes is destroyed by kanguengue larvae similar to livuno larvae. The creatures excavate the tubers and leave droppings in return. A few yams plants are cultivated by a few persons, mostly by old Nkoya people. It is an original Nkoya crop, I am told.

9. *Irish potato (Solanum tuberosum)*

Kanguengue damage unknown. One potato plant was noticed at Kalundu. It was grown in the dambo garden of a Lucazi village at Kalundu. The owners reported, that they had got some potatoes for setting by the Chinese.

10. *Groundnut (Arachis hypogaea)*

Some people have noticed that sometimes nuts, stems, and leaves of groundnut are eaten by kanguengue. Groundnuts are rather commonly cultivated, especially by the Ngangela and Cokwe.

11. *Groundbean (Voandzeia subterranea)*

Presence of kanguengue unknown. The crop is sparsely grown by most households. It is said to be an original Nkoya crop.

12. *Beans (Phaseolus)*

Most Cokwe and a few Ngangela persons have observed that kanguengue larvae sometimes damage pods and stems. Some of my Cokwe informants report, that the beanstalks now and then are bitten off by likundulu. This statement may refer to the larva of Prodenia litura, which according to Wyniger (p. 194) can bite off the stalk at ground level.

Beans are to a large extent grown by the Cokwe, to a lesser extent by the Ngangela. Among the Nkoya they are not important. Several varieties are known, both original Nkoya forms and immigrant forms. These forms have in varying degrees been replaced by a variety introduced by the authorities.

13. *Calebash gourd (Lagenaria siceraria)*

Some people have noticed small white kanguengue larvae like livuno larvae mining in the fruit of the calebash gourd. If a young fruit becomes yellow and turns rotten prematurely, these kanguengue larvae may be found inside. Members of the genus Dacus, pumpkin flies (Trypetidae, Diptera) cause the young fruits of pumpkins and cucurbits to go rotten and also destroy flowers and buds (Smit, p. 304).

Several varieties are commonly grown. The original Nkoya forms have been displaced by those introduced by the immigrants, because people preferred the size and modern form of these ones, explain my Nkoya informants. The Nkoya did not eat the flesh of the gourd before the arrival of the Ngangela and Cokwe. Nowadays, I am told, everybody at Kalundu has the habit of eating it.

14. *Pumpkin (Cucurbita)*

Kanguengue damage as for the calebash gourd. Some varieties are commonly grown. The Nkoya say that they have always cultivated pumpkin. Some Nkoya forms are still in use. One form with mottled leaves originates from the Lozi. Others were brought from Angola with the immigrants.

15. *Cucumber (Cucumis)*

Kanguengue damage as for the calebash gourd. Different varieties are commonly grown. Cucumber is an original Nkoya crop.

16. *Melon (Citrullus)*

Kanguengue damage as for the calebash gourd. Cattle melon is an original Nkoya crop.

17. *Eggplant (Solanum melongena)*

Kanguengue presence unknown. Some plants are grown on red soil or on termite hills.

18. *Solanecous fruits (Solanum)*

Presence of kanguengue not known. A few varieties grown, mostly by old Nkoya persons. These fruits are originally cultivated by the Nkoya.

19. *Tomato (Solanum lycopersicum)*

Attacks of kanguengue not known. Some tomato plants are cultivated in dambo gardens predominantly by Lucazi villagers.

20. *Cabbage (Brassica)*

Kanguengue is reported to like cabbage very much. Closer investigation reveals that people often refer to the cutworm (likundulu) or to the earwig (kanguengue). Yet several informants maintain that also kanguengue larvae of caterpillar habitus are fond of cabbage. In the dambo gardens cabbage is the most important vegetable. (See likundulu.)

21. *Mango (Mangifera indica)*

A few persons say, that there sometimes are small, white kanguengue larvae similar to livuno larvae in the ripe fruit. In the Mongu region (Mongu is the capital of Western Province) kanguengue attacks on mango fruits are common, these villagers report. There are so many mango trees there, that people can not take care of more than part of the fruits. In the Kalundu region these fruits are in great demand, and the larvae do not get a chance.

I observed a couple of times small maggots in fruits, which had ripened prematurely. Particularly children are on the lookout for these small, yellow, attacked fruits, and eat them, obviously without noticing the larvae. It is probable that the maggots in question belong to the family Trypetidae (Diptera).

Two kinds of mango trees, with fruits of different size and sweetness, are distinguished at Kalundu. They occur in small groves in several villages, but are missing in others. Mango trees are often used as shade trees.

22. *Lemon (Citrus limonia)*

Kanguengue attacks unknown. People are familiar with lemons, but do not appreciate them very highly. They are said to be too sour, and my informants find difficulty in imagining a larva that should endure such sour food.

In some lemons I observed the presence of small white maggots. In one Nkoya village at Mangango there is one big lemon tree to be found. The owner sells fruit to the mission and to teachers.

23. *Pawpaw (Carica papaya)*

Kanguengue attacks unknown. One tree is growing in a Nkoya village at Mangango.

24. *Mulberry (Morus nigra)*

Kanguengue presence unknown. Some few trees are to be found in different villages (M, L, C). The berries are for some reason not very popular. People often leave them in the tree as lure for birds.

25. *Banana (Musa)*

Kanguengue attacks not known. A few plants here and there in some villages.

26. *Sesame (Sesamum indicum)*

Presence of kanguengue unknown. Sesame is sparsely cultivated. The Nkoya have always cultivated sesame, say my informants.

27. *Roselle (Hibiscus sabdariffa)*

Kanguengue presence unknown. Roselle is more frequently grown by the Ngangela and Cokwe than by the Nkoya. It is originally cultivated by the Nkoya, I am told.

28. *Sugar cane (Saccharum)*

Kanguengue attacks unknown. A few plants are seen at Kalundu.

29. *Red pepper (Capsicum)*

Kanguengue attacks unknown. A few plants cultivated, mostly by the Ngangela and Cokwe.

30. *Tobacco (Nicotina)*

Most people have seen or heard of kanguengue larvae on tobacco. My informants report about young plants that are bitten off, about skeletonizing of leaves, about mining white larvae in the stem. The statements probably refer to several types of noxious larvae, as the cutworm (likundulu), the Laphygma exigua larva (see below) and others.

Tobacco is sparsely cultivated in the Kalundu region. The soil is not suitable, people declare.

31. *Castor (Ricinus communis)*

Kanguengue attacks unknown. Castor is commonly grown by the Ngangela and Cokwe. In the Nkoya villages it is only rarely found.

32. *Agave (Agave sisalana)*

Kanguengue attacks unknown. A few sisal plants are grown.

33. *Kidney cotton (Gossypium barbadense)*

Kanguengue attacks unknown. A few plants are to be found here and there.

34. *Tephrosia vogelii*

Presence of kanguengue not known. Used for poisoning fish.

Survey of kanguengue larvae in wild plants at Kalundu

Wild fruits

Several kinds of wild fruits are differentiated and eaten. Some people have noticed that small, white kanguengue larvae or livuno larvae bore in wild fruits.

Mushrooms

Several kinds of mushrooms are distinguished. Many kinds are collected and eaten. They are considered to be very delicious. It is commonly known that small, white larvae of maggot type, either named livuno larvae or kanguengue larvae, often are boring in mushrooms, consuming them and causing them to rot. Heavily attacked parts of a mushroom are cut off, the rest is eaten.

Trees

People believe that kanguengue larvae bore in trees. I am told, that sometimes one finds nets, which are filled with excrements and frass outside holes in tree-trunks.

Occasionally one catches sight of larvae looking like those kanguengue larvae, that are found in maize, say my informants.

In January I received a couple of c. 50 mm long, glabrous, reddish larvae belonging to the family Cossidae. They had been boring in a tree and were kanguengue larvae, reported the finder. I exhibited these larvae alive in the villages. They were called liungu larvae, never kanguengue larvae as long as I did not say, that they came from inside a tree. Knowing that they were borers in wood, people often named them kanguengue larvae. But one will only very seldom see that big ones, mostly a kanguengue is not more than half the size of one of these, declared the villagers. All my informants agreed that nobody would eat the displayed larvae.

Other plants

A couple of Mbunda and Cokwe persons reported, that kanguengue larvae live in high plants similar to grass or sugarcane on the rivers.

In the literature one can find several statements that probably refer to stalk boring larvae.

Lungungwa (Kaonde), a kind of jumping grub or maggot, which conceals itself under the ears of corn and destroy the grain (Woods, p. 83). Syaanyongwa (Tonga, Ila), syanhwanghwa (Ila), silunhongwa (Lenje), grub found in grain-stalks (Torrend, p. 254).

Mphuchi (Nyanja), a borer which infects maize or kaffir corn stalks (Scott & Hetherwick, p. 329), mphuki, mphuci (Nyanja), worm which bores in stalk, ear and grains of corn (mcj, p. 165), Kapuchi (Tumbuka), grubs which eat maize (Turner, p. 46).

Inhlava (Xhosa, Zulu), grub in stalks of mealies, kaffir corn, and sweet cane (J. Davis, p. 77). Inhlava (Ndebele), the worm in a stalk of corn, maize or sweet reed (Elliott, p. 98). Isihlava (Zulu), maize-grub, stalk borer (Bryant 1949, p. 38).

Kanyogombwa (Kiga), maize caterpillar (Taylor, p. 38). Shongo (Shamba), maggot in maize or sugar cane (Langheinrich, p. 422). Hannan notes for the Shona rukonye, stalk-borer, Busseola fusca etc. (p. 543), mbunga, mbungo, stalk-borer, synonym rukonye (p. 363), ruhweva, stalk-borer (p. 543). Mbungu (Punu), caterpillar parasitizing egg plant and sugar cane (Bonneau, p. 147). Kibungu (Matengo), maggot (Häfliger, p. 180). Alves (p. 1685) notes -vulukutu (Southern Mbundu), caterpillar, that bores in grain before it ripens.

Scott & Hetherwick (p. 322) report that mpanzi (Nyanja) is a hairless caterpillar with large head, that it eats the stalks of maize, that it is c. 3 inches long, and that people eat it. The statement seems to be based on a misunderstanding. It is hardly probable that a larva of the mentioned size bores in maize stalks.

Cimvunyu (a word common to most of the dialects), civunie (Tonga), cimvunya (Ila), green, fat insect, eating grain, one inch and a half long, eaten by some people (Torrend, p. 302). Torrend (p. 349) notes civunyu, cimvunyu (Tonga), maggot. According to De Clercq (p. 57) the Lulua term dikunia denotes worm destroying maize in the field. According to Gabriel (p. 54) the Lulua term dikunia denotes sp. caterpillar.

Doke (1931, p. 101) says that the Lamba eat umushyankoko, a caterpillar eating sorghum and grass (see lixanjungu). It is possible that the mentioning of sorghum in fact refers to a larva boring in sorghum stalks.

Endemann (p. 674) says that the Northern Suthu pick out worms from stalks. Alves (p. 968) gives -ngupi (Southern Mbundu), edible caterpillar, which enters the stem of plants. A possible synonym is -kupi-kupi, white larva, which bores in stalks (ibid., p. 420).

Thus one may conclude that the Nkangala are not the only kanguengue eaters.

The Lovedu (Suthu group) regard the presence of stalk-borers and caterpillars damaging crops as results of bad planning. The larvae are not considered to be sent by witches (Krige & Krige, p. 39).

Earlier the Lovedu planted crops in wet places as early as September, while today nothing is done until November, because crops planted earlier are more prone to be attacked by the stalk-borer (ibid., p. 30).

Hulstaert reports that the Nkundo name big beetle larvae living in tree trunks lofose. Lofose jw'okalaka is the name of an edible Cossidae larva, which only lives in the tree okalaka, Carapa procera. When it is found, it is an omen that a child will be begotten (Hulstaert, p. 1275).

Likundulu

Likundulu, ma (M, Nk, L), cikundinzi, vi (Luv), ciminguna, yi (C), rundura, ba (N), cutworm (type Euxoa (Agrotis) segetis (Noctuidae), probably several genera and species.

Host-plants: cabbage, tobacco, maize, beans, tomato.

Season: beginning of hot season until end of rainy season (c. August–March).

I have seen larvae pointed out to be likundulu larvae. The identification is mainly based on the descriptions given by my informants.

The Nkoya term rundura also denotes wire-worms (Elateridae, Coleoptera). There is, according to my Nkoya informants, no special word for cutworms. Cikunduizi (Ng), sp. of cutworm (Pearson); chiminguna (C), a non-edible caterpillar (MacJannet).

The Ngangela derive likundulu from kundula, break. The larva breaks off the stalks of plants, they explain. The Nkoya derive rundura from kundura, to break or uproot; -nguna, the second part of ciminguna, is the word for earthworm, say the Cokwe.

There is only one kind of cutworm, report the Ngangela and Cokwe. Many of them do, however, not at all know of its existence. Quite a number of Ngangela and Cokwe persons maintain that it is a young kanguengue larva cutting off plants of cabbage or tobacco by night. All likundulu larvae have similar looks, I am told.

According to the Nkoya there are two kinds of rundura, one corresponding to the cutworm, one corresponding to the wire-worm. All cutworms look the same, report my Nkoya informants.

Quite naturally the Nkoya consider the wire-worm to be the closest relative of the cutworm. Both the Nkoya, the Ngangela, and the Cokwe think that the cutworm is closely related to kanguengue. The Ngangela and Cokwe do not see any relationship between the cutworm and the wire-worm.

The cutworm is described as small, long as a finger joint, hairless and white, whitish or striped.

Exhibited specimens are not identified, if they do not coil up. Non-coiling specimens are named liungu or kalongolo.

Some cutworms which I obtained from a cabbage cultivation, are c. 30 mm long and greyish.

According to one opinion the grown-up cutworm bears young looking like livuno larvae (maggots). Without moulting these ones grow into adults. When they get old, they die as likundulu larvae.

Another idea, that I have found only among the Ngangela and Cokwe, is that likundulu is an early development stage of kanguengue (see p. 149). The young larva cuts off stalks, waiting for the plants to become older and bigger so that it will be able to bore into them, and change into a kanguengue, perhaps via moulting. Often this theory is fused with the idea that the kanguengue larva turns into an earwig, when it gets old. Rarely it is also said that a likundulu larva is transformed into an earwig, without becoming a kanguengue larva first. The Ngangela and Cokwe now and then assert that there is a connection between the pair of pincers of the earwig and the cutting of the cutworm. A few persons, mostly young ones, accused the earwig of the damage caused by the cutworm.

The cutworm is said to be an inhabitant of both forest, the dambo, and the cultivations. It is active throughout the year except in the cold season, and is distributed in the territories of the Ngangela, Cokwe, and Nkoya.

About the cutworm's habits people know that it spends the day in resting, coiled up in the soil at the foot of the plants. When darkness comes on, it awakes, creeps up to the surface of the ground, and moves about searching for young, succulent plants. It discovers the nice plants with the aid of its sense of smell. When it finds one, that it likes, it bites it off just above the ground. From the fracture it sucks up the sweet liquid oozing out. Every night it cuts 3 or 4 plants, before it is satisfied. At dawn it buries in the soil again, being afraid of the birds.

I obtained a few specimens of cutworm type from a cabbage cultivation in September. There is no doubt that the descriptions of the habits of the likundulu larvae refer to those of the cutworms (Noctuidae, Lep.).

The cutworm is considered to be inedible. It is sometimes said that the Nkangala eat it, but all my Nkangala informants denied the truth of this statement. It is not improbable that the gossip has confused the cutworm with the kanguengue larvae living in maize, which are eaten by the Nkangala.

In the Kalundu area the cutworm is predominantly known as a pest and destroyer of cabbage. Cabbage of different varieties is the most important vegetable of the dambo garden, where it often is the sole cultivated plant. The Chinese grew much cabbage in their gardens, while they were building the

asphalt road between Lusaka and Mongu (finished in 1973), I am told, and so people learnt cultivating and using it from them. Road building Kalundu inhabitants returning home established cabbage gardens similar to the Chinese ones. Still many villages lack such a garden, but more and more persons start enclosing a small area of perhaps 2×2 m near to the river for growing vegetables. A large dambo garden may be c. 15×15 m. Cabbage, a dry season crop, easily rots during the rainy season.

My informants say that the cutworm sometimes comes to live in a cultivation. If a person makes a garden in a place, where a cutworm happens to live, or in the vicinity of such a place, it will in all probability attack the grown plants. One morning, when the owner arrives to look at his vegetables, he or she will find, that some of them are cut off. Then the soil around the bitten off plants should be scrupulously strained between the fingers until the cutworm is discovered. It may lie at one finger's depth, people say, but not deeper. The larva should be crushed or thrown into the river. If it is not killed, it will destroy more plants.

It is said to be bad luck to get cutworms in one's garden. If one leaves them in peace to carry on their ravages, one is careless and lazy, according to the general opinion.

No medicine against the cutworm is known, except finding it and killing it, and weeding and preparing the soil well before sowing or planting. The soil is prepared by hoeing, mostly during winter-time.

Only one river vegetable garden owner at Kalundu of about a dozen ones complained in 1973 of cutworm ravages. When this person had found a couple of larvae, the damage ceased. But my informants willingly told how much the cutworms have destroyed other years or in other areas.

Some people know that the cutworm attacks tomatoes, which are also cultivated in the river gardens.

Often it is said that tobacco is destroyed by the cutworm, but it is uncertain whether these statements really refer to these larvae (see kanguengue, on tobacco, and Laphygma exigua).

According to some of my informants likundulu also cuts off young maize plants. Others say that they have never heard that the cutworm should attack maize. Those who think that it does report that the attacks are never very severe, and that they as a rule occur at the outer edge of the fields. Nobody believed that cutworms are able to spoil a whole maize field. From South Africa Smit (p. 214 f.) reports that cutworms can destroy whole crops.

The Cokwe often say that the cutworm cuts off bean plants. A few informants mention sweet potato and cotton as crops damaged by cutworms.

There are a couple of statements about the cutworm to be found in the literature. Umswenya (Zulu), wire-worm or cutworm (Bryant 1949, p. 322). Hweva (Shona), cutworm (Hannan, p. 263). Hannan (p. 543), however, also translates ruhweva (Shona) by stalk-borer. From the Southern Mbundu Alves (p. 939) gives -ngenge, white worm cutting off vegetables. Further the statement made by Van Avermaet (p. 248) about an insect, nketa bufuku (Luba, Katanga), which decapitates young plants and cuts off the young leaves, perhaps refers to the cutworm.

I have not obtained any statements, which with certainty can be said to refer to the so-called army worms, members of the genus Laphygma (Noctuidae, Lepidoptera). These are known to be serious pests in Southern Africa.

Laphygma exempta Walk.

The fully grown caterpillar is almost black with a light stripe (Smit, p. 218). In Southern Africa there are periodic outbreaks of the army worms, when they crawl over the ground quite fast, forming great black patches. If they happen to come into a cultivated field with e.g. maize, they only leave the stalks behind, where they have passed (Smit, p. 216 f.).

None of my informants gave me any information, that seems to refer to this caterpillar. When I described its appearance and habits, people thought that I referred to locust hoppers.

Laphygma exigua Hb.

This larva, c. 30 mm long, grey to reddish-brown with stripes (Wyniger, p. 409), is very similar to the former in appearance, but it does not form such dense swarms and it attacks a greater number of cultivated plants, e.g. maize, tobacco (Smit, p. 219), ground-nuts (Wyniger, p. 346). Wyniger (p. 367) mentions that young plants are devoured, often stripped bare.

Caterpillars active only at night; in daytime hiding in the ground immediately around the stem base (Wyniger, p. 409).

It is common knowledge at Kalundu, especially among the Ngangela and Cokwe, that small grey or striped likundulu or kanguengue larvae consume young tobacco. Some people say that they have experienced that every tobacco plant in a cultivation has been devoured. The great majority know of such harryings only by hearsay. Those who know of the cutworm as a rule maintain that this larva is the culprit, but some of them assert that kanguengue must be the guilty one, because one does never find any bitten off plants left behind, as one always does where the cutworm has been at work. On the other hand, the

caterpillars in question can be localized in the soil close to the attacked plants, just as typical cutworms, I am told.

It is possible that the statements refer wholly or partly to the larva of Laphygma exigua. Certainly they do not refer to the cutworm.

From East and South Africa a few statements about the army worm are given in the literature.

Mugariu (Kikuyu), black army-worm, caterpillar (Benson, p. 102). Ngunga (Kikuyu), small caterpillar (army-worm) (ibid., p. 317). Gumbira, mhundururu, mbundudzi (Shona) army-worm, L. exempta (Hannan, p. 229); -cwangubane, army-worm (Doke & Vilakazi, p. 38).

Nseto (Caga) is the striped caterpillar of the cabbage butterfly, which occurs in great numbers and threatens the millet fields, according to Müller (p. 241). Smit (p. 218) says that the army worm (L. exempta) in South Africa is erroneously connected with a white Pieridae butterfly, which flies in swarms during the daytime about the same time of the year as the night-flying imago of L. exempta. It seems probable that the Caga term nseto refers to the army worm. If the idea about the connection between the cabbage butterfly and the caterpillar in question originates with Müller or among the Caga is uncertain.

Hobley tells us about a Kikuyu doctor, who among his specialities had the removal of a plague of caterpillars. A detailed description of the campaign is given. The doctor could cause the caterpillars to be killed by heavy rain, to be eaten by soldier ants, or to be dried up by the sun after one day or two. It is also said about the same doctor that he by praying to the deity Engai and pouring out beer in his village could bring a plague of caterpillars on any section of the people which treats him badly. The author adds that he could do so only in the normal season, when caterpillars are apt to come in swarms (Hobley, p. 184 f.).

There are some general statements about larvae destroying in the cultivations to be found in the literature.

The Mpongwe use a preventive medicine to protect the cultivations against worms, monkeys, and other pests (Raponda-Walker & Sillans, p. 95). Junod says that when a Thonga chief observes pests threaten the kaffir corn crop, he believes that he has not worshipped the ancestors fittingly, and so they are brought offerings (Junod 1927, vol. II, p. 404). The Gogo doctor, in order to banish mbiluzi, caterpillars, burns medicine in the garden infested by them, and calls the birds from the four corners of the earth to come and eat them (Cole, p. 320). Krige & Krige (p. 250 f.) says that the Lovedu think that worms can be

sent by witchcraft to destroy one's crops. About stalk borers the same authors (p. 39, see above, kanguengue) report that the Lovedu consider their attacks to be results of bad planning.

The Ngangela, Cokwe, and Nkoya seek the causes for crop failures in various quarters. One self or some other person may be to blame. The cause may be bad planning, bad luck, an ancestor's demand for an offering, an enemy's revenge. To keep marauders as human beings, insects, animals, torrents from the fields many people plant as a general preventive medicine Agave sisalana. No special medicine against larvae has ever been used at Kalundu, assert my informants. Some peasants and doctors have heard of European medicine, that is said to be very successful in killing e.g. cutworms. They think of pesticides. A couple of persons pointed out that there is no need for such strong medicines as long as one does not cultivate too large fields with one and the same crop.

CHAPTER 12

The Bagworm

Inamuxo is loosely associated with the other liungu larvae. It belongs to a category of its own. See chap. 4, vol. 1.

People distinguish the inamuxo larva on account of its way of living in a movable house. The Mbunda and Nkoya know of one kind only. It corresponds entomologically to bag living larvae of the families Tineidae and Psychidae (Lepidoptera). Inamuxo is regarded as inedible.

Inamuxo

Inamuxo, va (M), niamuxo, va (Nk), niamuso, va (L, C), nyamwali, va (Luv), kacahilila, tu (C), kankanga, tu (N) bagworms, i.e. larvae of many species belonging to the families Tineidae and Psychidae.

Host-plants: miscellaneous trees and grasses.

Season: throughout the year.

I have obtained various types of bagworms, all pointed out as inamuxo larvae. The identification is based on a study of these specimens and on the descriptions of my informants.

The Cokwe report that niamuso is a Ngangelaism.

Niamuso (Ng), inamuxo (M), cisontsa (Ng), inamongolo (Ng), cocoon; girl undergoing puberty rites (Pearson); the latter term, with plural prefix zi-, is a Niemba word; inamugolo (Ng), larva which envelops the chrysalis in a case of twigs (Baião); kachayilila (C), chrysalis, embroidery; a darn (MacJannet).

Most people can narrate that the bagworm has got its different names, because it lives in a shelter just like a girl undergoing initiation rites at puberty. All the terms except the Cokwe word kacahilila also denote such a girl. Ina (M), nia (Nk, L), nya (Luv) means mother of, people say. Muxo (muso) is according to one opinion a grass hut. According to another it is a shelter of any kind. During their initiation Ngangela and Cokwe girls are kept isolated in especially erected huts covered with grass. The Nkoya word nkanga denotes blanket. The day, when the Nkoya girl returns to the village as a woman, she stays lying motionless under a blanket in the middle of the village. She is protected from the sun by a roof of grass supported by four poles. The meaning of the word kacahilila is unknown.

One kind of inamuxo is known to exist. My informants say, that there are no varieties. Inamuxo is counted as a kind of liungu, but many a person hesitates

when saying so, although it looks like a liungu and moves about eating leaves. Its house makes it very different from all other liungu larvae, they point out. Mostly it is said, that it has no close relatives. A few persons suggested that it is related to cimbua, as both larvae live in houses, or to a turtle, which carries its house with it just as inamuxo does.

Inamuxo is described as a short and thick-set larva, about two finger joints long. It is hairless and black and white in colour. It is provided with eyes, biting teeth, a pair of small hands, close to the head, and two pairs of feet. Most of the body is never seen, as it is hidden by a bundle of twigs.

The descriptions of inamuxo refer to a big kind of bagworm type lictor bagworm, which is abundant and conspicuous in the Kalundu region. This larva makes a case with a diametre of c. 20 mm and a length of c. 60 mm. It is often seen suspended on branches or house walls. All the other occurring types of bagworms are smaller and less conspicuous. They, too, are named inamuxo, but people do as a rule not notice them, even if they know that different inamuxo individuals make cases of different shapes and of different material. When I asked people to collect bagworms, the great majority only came with lictor bagworms, but now and then I also received thatched bagworms, leaf bagworms, crossed stick bagworms and even gravel bagworms. Displayed specimens with cases were mostly identified as inamuxo larvae. Of exhibited specimens without cocoons only the lictor bagworm was recognized. All the others were said to be kalongolo insects.

Larvae belonging to the order Trichoptera, which live in water, where they make cases of a similar type as those of the bagworms, are unknown. Exhibited specimens were said to be inamuxo larvae, but nobody associated them with water or knew of any inamuxo to be found in water. When I pointed out Trichoptera larvae (caddisworms) in their proper environment, most of my informants thought that they were some kind of fish. Some persons suggested hesitatingly, that they were inamuxo larvae.

The lictor bagworm is c. 40 mm long, c. 10 mm broad. Glabrous with light head and black body.

There are different opinions of the life cycle of inamuxo. Some people believe that both male and female sex exists. The females bear children. Others positively assert, that all bagworms are females. Most of those persons who hold this latter view can not give any details about the reproduction, but some, predominantly old men and women, who are familiar with the tradition, maintain that the females bear young ones. I received three different theories with this basis.

According to one theory the mother bears several children, who live together with her in her house, until they are old enough to manage without her help. When they leave her, they build their own small houses. As they outgrow these, they build new, bigger ones. When they are full-grown, they can live for many years, and do not need to build new houses any more.

According to another opinion the female, before she dies, bears a daughter, who takes over the management of the house. The larvae are short-lived, so that the houses change owners many times a year.

According to one Nkoya doctor the bagworm is a female, while the male is a small snake. Wanting to copulate the snake lies outside the door of the house, and when the bagworm unsuspiciously but curiously shows its head in the orifice after some time, the snake seizes it by the head and spits into its face. Then the snake loosens its grip and winds away, and inamuxo withdraws into the house to mould a child, which becomes a snake or a bagworm.

This last account shows similarities with the description given by Smith & Dale (vol. I, p. 226 ff.) of the process of human reproduction as it is understood by the Ila. The fact that people so generally think of the bagworm as a female is perhaps an indication, that as well the Nkoya as the immigrants formerly held a view similar to that of the Nkoya doctor. Support for this assumption may be found in the circumstance that the snake is supposed to be the worst enemy of the inamuxo larva (see below) and in the circumstance that inamuxo is connected with the female initiation.

No informant reported that inamuxo moults or undergoes metamorphosis into a pupa or a butterfly. When questioned people said, that they are sure that inamuxo is not like a liungu in these respects. Nobody has observed that a pupa may be found in an inamuxo house. There is no reason for anybody to examine the house closer. As a matter of fact there is instead reason for people to avoid contact with it (see below).

Inamuxo is known to live in most habitats, where trees and grasses grow. It may even be found in the village, where it sometimes happens to stray. People suppose that it feeds on all kinds of trees and grasses, that is, nobody has taken interest in finding out on which plants it occurs.

The larva is supposed to be most common in the rainy season, yet it occurs throughout the year.

In all the territories known by my informants inamuxo is as common as at Kalundu, I am told.

People report about inamuxo: That it is rather common. Sometimes a few may be seen together, but as a rule the larvae live one by one. An inamuxo

always stays inside its house. It leaves it only when it moves over to a new one. The house is mostly made of twigs, but according to the individual taste of the larva it may as well be made of grass, leaves or gravel. It may also be of different size and construction, just as human houses. The door, however, is always made of white web and usually closed. Some persons know that the inner walls are clothed with the same kind of web. Inamuxo builds carefully. The pieces of material are closely joined to each other, so that no holes are seen. The sticks are of uneven sizes, and the house of the common type looks like a burden of firewood.

When a young inamuxo outgrows its house, it starts making a new one by producing a thread from anus, and twisting its hinder part in a circle. Soon a white sack is ready. Then it looks around for twigs that can be used, and bites off these into suitable sticks as long as or longer than the sack. Sometimes the sticks are of very uneven sizes. Some may be as much as two finger joints longer than the rest. When all the building material is collected, inamuxo vomits a slime, which is smeared on one side of each stick. Then they one after the other are seized by the mouth and put down at their respective places, where they are glued together with each other and with the surface of the sack. The structure is so strong, that it can not be teared up with human fingers. If a stick happens to be fractured, it is replaced by a new one.

As inamuxo has a water-tight house, it likes any weather. During rainfall and by night it shuts the door, and is thus well protected. Its house is better built than most human houses. Inamuxo is skilful, people say.

Mostly one does not see more of an inamuxo larva than the house hanging suspended somewhere on a branch, secured with the aid of some threads. The larva may be asleep, but probably it is peeping towards you through a slight opening of the door. It is very shy, but after a while, when it thinks that the danger is over, it may perhaps open the door little by little, prepared to shut it at the slightest hint of danger. Then the head and the hands protrude, and the larva starts to move with the aid of its hands, while the feet hold the house. The hinder part of the body is never seen. Inamuxo only moves, when it looks for food. It eats one leaf here and one there, and will never strip a branch of its foliage. When it gets tired of the leaves of one plant, it makes itself drop down to the ground. It may also creep down. Occasionally an inamuxo is found on the wall of a house, but then it has very likely lost its way, or maybe it believes that the house belongs to one of its relatives, and it wants to take a closer look.

Now and then people find an empty house of a full-grown inamuxo. It means that the inhabitant has been taken by an enemy. An inamuxo larva lives until

there comes an enemy and kills it. Its enemies are terrible. All kinds of snakes from the python (xato (M)) to the small burrowing snake (cixatangua (M)) (type Typhlopidae) think that inamuxo is very delicious. The snake localizes its prey by smelling it, and this is easy, because inamuxo stinks. Yet as long as it stays indoors, no smell can be felt, but even if it tries to keep the door shut, it has to go outside and feed at times. At once it appears, the smell is there. Inamuxo on its part recognizes the stench from the snake and hides, when it notices the danger. The snake coils up with the door within reach, and patiently waits until the larva can not surpress its curiosity or its longing for fresh air any longer. Then the snake strikes and grasps its head and wriggles it out of the house and swallows it.

Except the terrible snakes only the most cunning or stinking enemies can outwit and capture inamuxo. People mention the stinking Cape polecat (Ictonyx striatus), the jackal and mueumueu, the giant, black stinking ant (Plectroctena mandibularis F. Smith, Ponerinae). Further lixonde (Dorylus (Anomma), Dorylinae) and vuzili (Pheidole, Myrmicinae) (both Formicidae, Hymenoptera) invade inamuxo's house just as they invade the houses of human beings.

Inamuxo is considered to be dangerous, because if somebody happens to tread upon an inamuxo and crush it and there is a snake in the neighbourhood, and this is almost certainly the case, the snake will attack and sting the person. The only way to avoid this fate and escape the snake is to run as fast as possible to the nearest stream and wash very carefully. The reason why this should be done, people say, is that the stench of the larva should be washed away from one's body.

Children are warned not to trample upon or hurt inamuxo. It is said that several persons die each year, because they have trampled inamuxo larvae to death and then they have been stung by snakes. Also domestic and wild animals are known to avoid inamuxo. They take care, as they are afraid of snakes, they too, report my informants.

According to the common method of controlling snakes one should take a fish-hook, pull an inamuxo larva out of its house, pierce it with the hook, and leave it on the ground. One should wash one's hands and hurry from the place in order to be away, when the snake comes. The snake is soon attracted by the smell, and it immediately swallows the larva and dies from internal injuries. When the person in question returns the next day, he will see that the bait has disappeared, and then he knows that a snake has been caught. Several old men and quite a number of young ones at Kalundu told me that they are in a habit of killing snakes in this way.

There is yet another danger associated with inamuxo. If a domestic animal

happens to swallow one of these larvae, while grazing or tearing the leaves from a branch, it will get stuck in the throat and cause suffocation. Consequently, my informants maintain, the animals are afraid of them. Yet cattle, goats and pigs sometimes swallow an inamuxo by accident. The unlucky animal tries to cough the larva up. This may succeed, but more often the animal will continue to cough violently for some days, and then die. When the throat is cut up, one will find an inamuxo.

Both the Mbunda and the Nkoya use inamuxo as a household remedy against severe fits of hiccups, coughing and nose-bleeding. A case with the larva in it, is burnt to ashes, mixed with salt, and eaten.

The same medicine is used in cases of haemorrhage from the mouth and of uterine blood-flow, both menstrual and other, and at childbirth, when the afterbirth is late. Nkoya women smear the belly with the ashes during difficult deliveries. These remedies are also used by the doctors.

In cases of shiposo (N) inamuxo is an important ingredient for Mbunda and Nkoya doctors in the counter remedies. The ashes of inamuxo are rubbed into wounds which are cut in the skin. In this way shiposo is driven out, either coughed up or sucked out with the cupping horn. According to Mbunda doctors shiposo can sometimes be hiccupped out. Shiposo is an artificial snake or snake-like animal, which can be sent to kill enemies.

In the literature there are some statements about an insect, larva, grub, caterpillar, chrysalis, pupa, or cocoon in a case of pieces of grass or twigs. They probably refer to the bagworm.

The opinion that the bagworm causes death of cattle is reported from the Tswana (Brown, p. 202), the Zulu (Bryant, p. 437), the Xhosa (Kropf, p. 398), the Ndebele (Elliott, p. 137), the Yao (Stannus 1922, p. 292). Bryant states only that the bagworm is fatal. The other authors inform us that the cattle swallow it while grazing. Brown and Kropf say that the case is made of grass, and Kropf adds that it is to be found at the top of high grass and on the ground. Further Brown and Kropf describe it as poisonous, but it is doubtful whether this is the original opinion of the Tswana and Xhosa. All my informants in the Kalundu region as well as Lumbu and Namwanga informants maintained that the cattle are suffocated. It does not seem to be improbable that also the Tswana and the Xhosa are of this same opinion. Mabille et al. (p. 222) translate a Southern Suthu term by the larva of the insect Crisocharacta amphiactis. This bagworm makes its case of grass (Smit, p. 182).

The Africans of Natal and the Transvaal all believe that bagworms are deadly poisonous (Smit, p. 189).

The Luba in Katanga think that there is a connection between the bagworm and the breathing-organs. According to Van Avermaet (p. 724) asthma, bronchitis, pneumonia are believed to be caused by "spirits" seizing the throat or the chest, and then as a cure the bagworm kitsyabila ngoya is used as nkisi. Also the Kongo use the bagworm in several nkisi (Laman 1936, p. 257).

The Bemba use the bagworm, kantebele, as a charm in the beginning of the cisungu ceremony. The term is also used metaphorically for a dandy, which is an allusion to the insect covering itself with many pieces of grass (White Fathers, p. 418). Cisungu denotes the ceremony performed for the girl at the appearance of the first menstruation (ibid., p. 229). Doke (1963, p. 26) mentions a kind of caterpillar, icisungu (Lamba), which probably is the bagworm.

In Cameroon it is believed that the bagworm every year adds a twig to the case, and that it in that way counts the years (Ittmann, p. 29). I found the same belief among the Lumbu and Ila at Itezhitezhi.

A connection between snake and bagworm is known from the Herero. Irle (1906, p. 46) says that the sting of the bagworm is deadly, and the name okasiakondara means the small cousin of the giant snake ondara.

From the Thonga (Junod 1927, vol. I, p. 65) reports that the boys know the big Psyche caterpillar, which hangs from the nembenembe shrub, Cassia petersiana, and that they call it mahambaindlwane, the one who walks with his house.

The Nyoro term akasenyanku means it collects firewood, and denotes building caterpillar, which makes a cocoon like a tiny bundle of firewood and lives inside (Davis, p. 63). Chitema ngwi (Yao) derives from kutema, to cut, ngwi, firewood (Stannus 1922, p. 292). Mteba (Nyanja) is a caterpillar covering itself with pieces of wood (Scott & Hetherwick, p. 339). Sicitebelwa (Tonga), simutebeelwa (Ila), kamwala (Ila) denote larva (Torrend, p. 325). Kamwale means small house. Teba means cut, break (branch). It is probable that the three terms given by Torrend denote bagworms.

From the Luimbi Baumann (p. 172) reports that nyamusu denotes insect nest, and that in the diviner's basket such a nyamusu represents that the one who is guilty of a malady of a person belongs to the house of that person. In all probability nyamusu is a bagworm.

CHAPTER 13

The Luck-larva

Mucebu, which is only known by the Nkoya, is loosely associated with other liungu larvae. It belongs to a category of its own. See chap. 4, vol. 1.

Mucebu

-(Ng, C), mucebu, mi (N) kind of acephalous-apode larva (Diptera?).
Habitat: firewood, ground.
Season: all the year around.
I have obtained the larva.

A term mukewu, which seems to correspond to mucebu, occurs in the Cokwe language, but it refers to another insect, the velvet ant Mutillidae, Hymenoptera). The Cokwe think that mukewu brings fortune.

My Nkoya informants do not know the etymology of the word mucebu, but they believe that the larva is named after its capability of bringing good luck in the form of meat.

One kind of mucebu is known. All the larvae look the same, I am told. Mucebu has no relatives, say the Nkoya villagers, but its movements are very similar to those of a liungu, and so it is classified together with the liungu larvae and even regarded as one of them. Some people report that it is closer related to kanguengue than to the others, as it bores in wood, just as kanguengue bores in other plants.

Mucebu is described as being very small and red. The reproduction of the mucebu larva has not attracted any attention. People agree that nobody has ever seen a mucebu child or heard of one. None of my informants knows whether mucebu moults or whether it undergoes metamorphosis.

Larva c. 10 mm long, c. 2 mm broad. Head capsule indistinct; with black buccal hooks. Body red, densely covered with red hairs.

Displayed specimens (c. 10 mm long) were commonly recognized by the Nkoya. The Ngangela and Cokwe classified them as kalongolo insects (see chap. 4, vol. 1) and said that they were suggestive of caterpillars, the red mite, or the bedbug.

Nkoya people in general say that mucebu lives in the forest, but that nobody has ever seen it there. The Nkoya doctors, who need mucebu larvae for their

medicines now and then (see below), report that they have found many a mucebu in the forest.

Sometimes the larva appears at the hearth. It may be seen at any time of the year, the villagers say. Some people assert that it is discovered more often during the rainy season. In the countries of the Nkoya, Mashasha, and Lukolwe it is rarely to be found. It occurs at Kalundu. I am told that there are many persons who have never met a mucebu.

It is known that mucebu lives alone. According to one opinion it bores in firewood and eats bark or wood of dead trees. Most informants, however, maintain that nobody can know if it perhaps lives in all kinds of places and only happens to be discovered on firewood now and then, or if it actually lives just there.

During the dry season and the early rainy season all search for mucebu was in vain. Not until December (Dec. 12), I found a specimen. From early January up till the end of February I observed mucebu larvae creeping about on the ground almost every day, especially after rains. Occasionally I caught sight of two or three at the same time. The larvae were also observed in decaying vegetable matter and on firewood.

The Nkoya, Mashasha, and Lukolwe consider it to be a great luck to discover mucebu. Traditionally it is thought that a meeting with it means that one will receive meat to eat in the immediate future. I am told that it only reveals its presence for people belonging to the Nkoya groups, never for the immigrants. Mostly it is seen on the logs used for firewood, creeping about on the bark. Now and then it is observed on the ground near a fire-place. Women are known to find it more often than men do.

If a hunter catches sight of a mucebu, he knows that he will kill a big animal the same day, and then satisfy his meat hunger. People in general have more modest expectations. They think that they will find e.g. a nest with young doves, or, and this is the most common, that there will come a visitor bringing a gift of meat. Especially according to young people also gifts of tobacco, snuff, cigarettes, a bottle of distilled spirits, sweets like honey or sugar cane, or even some kind of common food will do. The important thing is that the one who has seen mucebu can be sure that something pleasant will happen. When the rains are heavy, the meals are poor, and the next harvest is yearned for, while the stores are running short, people long for to set eyes on mucebu, say the Nkoya. At this time (c. Dec.–Jan.) people are down-hearted and sit shivering of cold around the fire-places with wet clothes, thinking of good food, explain my informants, and tell further that during this period it is considered to be very uncivilized to visit

another village without bringing a gift of eatables, because the host household has to treat the guest with hospitability, even if there is almost nothing left to eat. Many of my Nkoya informants admit that they look for mucebu, when there is shortage of food, eager to get to know that something nice is to be expected. An empty-handed visitor arriving in a village, where mucebu was newly seen, will meet astonishment and perhaps anger.

A lucky person may meet mucebu three times in one year, but normally it appears once a year or once every second year in a village, people estimate. As already mentioned many a Nkoya person dies without having come across one single mucebu. Such a person is said to have had bad luck. If somebody looks unhappy, people may say that he or she has never seen a mucebu.

According to some persons it is not enough to catch sight of a mucebu larva. One must also rub it against one's forehead, or make a cut in the skin of the forehead so that blood is drawn, and then rub mucebu into the wound. Others say that these are medicines to prolong the luck of the appearance of the larva. Normally the luck will disappear after one or two days. If one behaves as described, it will last for about a week, people assert. It is told that the finder of mucebu will soon find out, when the luck is gone.

Some christian Nkoya associate mucebu with heathendom, the devil, and witchcraft. These persons can, however, not explain why the larva should be that bad. Yet they sign the cross, spit, or look away, when it appears. Other christian Nkoya maintain that this is wrong, and that mucebu may forebode e.g. a missionary coming with cakes and sweets for women and children.

Nkoya doctors use mucebu as an ingredient in some of the many luck-medicines. Such a medicine may be durable for a whole year. The owner soon notices when the power is gone, and then he can renew it. These medicines may be rubbed into a cut in the skin, swallowed, or kept close to the body e.g. in a small box. One must not tell anybody else about them, because then they lose their power.

In the big towns Nkoya doctors of a modern kind earn much money e.g. by using mucebu larvae in medicines, which are sold to unemployed persons, who want to get work, to lower grade officials, who desire a higher grade, to pick-pockets, who search for victims with much money, to buyers of lottery-tickets, who want prices, to car drivers, who are afraid of not arriving at their goals without any accidents.

Even if people sometimes look for mucebu, they do certainly not search very carefully. A larva may be creeping around close to the hearth, without being observed by anyone of a dozen or more persons.

CHAPTER 14

Butterflies and moths

The limbilimbili genus 1. limbilimbili 2. kambumbu.

These insects are distinguished by their fluttering flight and by possessing dust on the wings. The Ngangela consider limbilimbili and kambumbu to be two different kinds of closely related insects. The Cokwe do not have any separate name for the kambumbu moth, and say that it, too, is a limbilimbili. The Nkoya classify the moth in question together with wood-boring beetles. Entomologically limbilimbili corresponds well to the order Lepidoptera (excluding grain boring moths), especially Rhopalocera, while kambumbu corresponds to grain boring moths (Gelechiidae). A tendency to split limbilimbili into several ethno-species is discernible, probably originating from European ethno-entomology.

Butterflies and moths are considered to be inedible.

The death's-head moth is treated after limbilimbili. The clothes moth, the case-bearing clothes moth, the wax moth are treated after kambumbu.

Limbilimbili

Limbilimbili, ma (Y, M, Nk, L, Luv, C), cimbilimbindzi, vi (L), kavyavya, tu (Luv), kambimbi, tu (C), shipemperi, bi (N), ribavubavu, ma (N) butterfly and moth (Lepidoptera); hundreds of species; not the grain moths.

Habitat: open places.

Season: throughout the year.

The identification is based on the descriptions of informants, on field observations, and on study of collected specimens.

Limbilimbili is the term in common use among the Ngangela and Cokwe. The Nkoya mostly say ribavubavu. The Nkoya term shipemperi is predominantly known by old people. Sometimes it is thought to be a Mashasha or Kaonde word. Sometimes it is said to have a more restricted sense (see below).

Cimbilimbindzi (Ng), limbilimbili (M), butterfly, moth (Pearson); limbili-mbili (Ng), butterfly (Baião); kambimbi (C), butterfly; kashishi (C), kind of butterfly (MacJannet).

None of my Cokwe informants knew of the word kashishi.

The Mbunda think that the term limbilimbili derives from mbila, throw, throw out, throw around. The butterfly has a habit of opening and closing its wings, when it e.g. is sitting on a flower, explain some people. Others say that it

flies so to say in unwarranted chops, instead of flying straight on, and that this is the reason why it is named limbilimbili. The Lucazi assert that cimbilimbindzi is a compound of mbila and ndzindzi, fly, e.g. house-fly. According to the Cokwe also the name kambimbi is a derivation from some word denoting the butterfly's way of flying, but nobody could tell me which this word should be. The Nkoya derive libayubayu from kubayuka, to flap one's wing, to flutter. About the etymology of the term shipemperi they are uncertain. Some persons think that shipemperi comes from kupempera, to be mad or to flutter around.

When asked about different types of limbilimbili, most people answer that there is only one kind. All the variations in size, form of wing, pattern and colour are regarded as individual differences, I am told.

Some Nkoya say that shipemperi, or shipemperi manda mabungu (mabungu is the plural of libungu, caterpillar, manda is hesitatingly said to mean mother), is a special kind of big butterfly, and that all other butterflies are libayubayu butterflies of one and the same kind. Shipemperi manda mabungu lives in the forest, say these informants. Big Attacidae, Papilionidae, and Lasiocampidae imagos were identified as being butterflies of this sort. Other Nkoya persons maintain that libayubayu and shipemperi are synonyms, and report that they have never heard of the designation manda mabungu.

Also among the Mbunda I found a tendency to differentiate two kinds of limbilimbili butterflies. Some people talk about a big butterfly living in the forest and being the chief of all the others. I am told that the chief gets copious amounts of food from its subjects, and that this is the reason why it has such a big belly. A few of my Mbunda informants assert that the chief is of a specific kind, just as the lion, being the chief in the cat group of animals, is of a specific sort.

When caterpillars and butterflies are discussed, most of my Ngangela and Cokwe informants and also some of my Nkoya informants tend to differentiate the butterflies more, saying that different kinds of caterpillars will be transformed into different kinds of butterflies. As a rule these persons believe that some characteristic feature of the caterpillar will be found also with the butterfly in question. These systematics are, however, only very poorly elaborated. It often happened that a person who had just claimed that different caterpillars turn into different butterflies, and who had said e.g. that a green likese larva will become a green butterfly, or that a cikilakila larva will become a Papilio butterfly (see cikilakila), a moment later reported again that all butterflies are of one and the same kind. (See further below and chap. 6, vol. 1.)

Sometimes people remember that some nkandikulioca insects resemble or even are limbilimbili butterflies. One may hear it said that such a nkandikulioca

butterfly is a special kind of limbilimbili. The term nkandikulioca denotes different types of insects, which are on the wing by night and are attracted by fire. There is no butterfly among the more well-known nkandikulioca insects. When e.g. a hawk moth is exhibited, everybody recognizes it as a limbilimbili, i.e. as a butterfly of the common kind, and maintains that it flies in the day. But when this same moth is observed tumbling into the fire in the evening, it is conceived as a nkandikulioca. From the end of October until the beginning of December swarms of hawk moths and other moths were observed feeding on flowering shrubs from dusk onwards. They were very conspicuous in moon-lit nights, humming around without fright. People did as a rule not notice them. When I pointed at them, they were denoted as nkandikulioca insects.

The Ngangela consider the kambumbu moth to be the closest relative of the limbilimbili. According to the Cokwe, who do not name limbilimbili and kambumbu separate, the two are of one and the same kind, why it is wrong to talk about relationship. The Cokwe and the Nkoya do not mention any close relative at all. More distantly the butterfly belongs together with the flies, say my informants of the different ethnic groups. It is a member in the group of flying insects.

Only seldom a person will spontaneously come to think of caterpillars, when butterflies are discussed. It is more common, then, that people associate to butterflies from caterpillars. (See below.)

The butterfly is now described as small, now as big. It has two large wings and a small body. The wings are covered with a material, which alternatingly is called dust, feathers, and hairs, and which easily can be scraped off so that the transparent skin is exposed. The head is small and provided with a pair of eyes and a long, thin tongue, which according to some people resembles the tongue of the ant-bear. The tongue is withdrawn into the mouth, when it is not used, I am told. Some persons have noticed the feelers, and remember that they are two. The feelers move to and fro, the villagers know, but they are uncertain about their function. It is often suggested that they are ears. Further it is said that the butterfly has a pair of legs, and claws, with which it clings to the flowers, grass-stalks, etc.

Several persons positively assert that all individual butterflies, possibly with the exception of the shipemperi butterfly or the chief of the butterflies, have quite the same looks. Others have observed that there are bigger butterflies, and smaller ones, and that they are coloured and patterned differently. All kinds of colours are mentioned or pointed out, and it is reported that a butterfly can be e.g. plain or spotted. Some villagers also know that there are butterflies with a

tail. They have the projections on the hind wings of butterflies of type Papilio in view.

I have noted that the members of the following of the about 85 Lepidoptera families are regarded as limbilimbili butterflies:

Heterocera (moths; fly mainly at night): Cossidae, Zygaenidae, Notodontidae, Lymantriidae, Noctuidae, Attacidae, Lasiocampidae, Sphingidae, Hesperiidae.

Rhopalocera (butterflies; fly in the daytime): Papilionidae, Pieridae, Lycaenidae, Nymphalidae, Danaidae, Satyridae.

Members of the families Pyralididae, Gelechiidae, Tineidae (Heterocera), which are of Gelechiidae type, are sometimes classified as limbilimbili butterflies, sometimes as kambumbu moths, when they are displayed, except by the Cokwe, who generally classify them as butterflies among butterflies.

Members of the butterfly family Aegeriidae (Heterocera), the clear-winged moths, which wholly or partly lack scales on their wings, are not regarded as limbilimbili butterflies. They are rather classified as wasps (Hymenoptera), when I exhibit them, but it is evident that they are as a matter of fact unknown.

It is probable that most of the members of the remaining, not mentioned families of Lepidoptera are considered to be limbilimbili butterflies.

Members of the order Trichoptera, caddis flies, which in appearance as well as in nocturnal habits are so similar to moths of the sub-order Heterocera that only an entomologist can tell them apart, are said to be limbilimbili butterflies, when they are displayed. It is evident that people do not distinguish them as a special kind.

Insects, which because of their fluttering way of flying are suggestive of butterflies, e.g. imagos of myrmeleonids (Myrmeleonidae, Neuroptera), imagos of Calopterygidae (Odonata), green lacewings (Chrysopidae, Neuroptera) are often called limbilimbili butterflies, when they are seen in a distance. Imagos of myrmeleonids (Palpares) are often flushed from the grass in August–October.

None of my informants made any distinction between moths (Heterocera) and diurnal butterflies (Rhopalocera). The latter are more well-known as type than the moths. The descriptions refer to diurnal butterflies.

Displayed butterflies are recognized by everybody. A person, who is uncertain of the identity of an insect, similar to a butterfly, may take e.g. a stick and scrape a little on a wing, in order to see if there is any dust (=scales). In the nature, too, people generally recognize them, especially in the air, even at a distance, when they look as little more than points. If the point flies in a fluttering, jerking, typical butterfly way, one can be sure that it is a butterfly.

Many people say that the butterfly lays eggs among grass, and that small

butterflies, which will later grow, hatch out of the eggs. None of my informants maintains that the butterfly should bring forth living small butterflies. A person, who, when butterflies are discussed, asserts that butterflies hatch out of the butterfly eggs, may at the same time, when caterpillars are discussed, be of the opinion that caterpillars develop into butterflies. Only a few persons say directly, when I ask about butterflies, that the butterfly is the parent of the caterpillar, or that the butterfly has developed out of a caterpillar. It is obvious that people are unwilling to connect the useful caterpillar with the nasty butterfly. It would seem probable that the idea that a caterpillar turns into a butterfly is of foreign (European) origin, even if there is also reason for the opinion that it should be traditional (see chap. 6, vol. 1).

According to some Nkoya people it is a particular kind of big butterfly with big body, which is to be found in forest, that is mother of all kinds of caterpillars. It is called shipemperi or shipemperi manda mabungu (see above).

Otherwise those who connect the caterpillars and the butterflies mostly say that different kinds of butterflies develop out of different kinds of caterpillars, and lay eggs, out of which respective larvae hatch. When people think of the liungu larvae, they generally assert that the butterflies lay the eggs on leaves, in fissures of bark, or in holes of trees.

As a rule my informants maintain that nobody knows exactly which butterflies that are related to which caterpillars. Occasionally it is said that Papilio butterflies (Papilionidae) are grown-up cikilakila larvae (Sphingidae). Both the butterflies and the larvae have got tails, people explain. Often I am told that the appearance of the caterpillar should in some concrete way resemble the appearance of the butterfly (see above).

One woman pointed out a mbandama butterfly as cikilakila's mother (see mbandama).

According to some informants some butterflies give birth to caterpillars, while others lay eggs, which hatch into butterfly children. No one could, however, tell me which butterflies that were of the one or of the other type.

A couple of persons suggested that the caterpillar is transformed into a butterfly, that this butterfly lays eggs, out of which small, young butterflies come. When these grow up, they lay eggs, out of which the caterpillars come.

Information about the life cycle of the butterfly is given in chap. 6, vol. 1.

It is not only the caterpillar that is said to be transformed into a butterfly. Now and then it is reported about various beetle larvae (Scarabaeidae), grasshoppers, etc. that they, too, develop into butterflies, when they grow up.

Most persons state that the butterfly is to be found everywhere, but that it is

particularly common in grass-covered areas on the river, where there are many flying around among grass and flowers. It is also common e.g. in the forest and in the fields, I am told.

Butterflies occur all the year, but during the cold season (June–July) they have their haunts only along the watercourses. I am told that the butterfly is equally common in all known areas.

People know that the butterflies live one by one, but that they appear two or more together in places, where there is plenty of food, and where they then keep company. According to some Mbunda there is a chief among the butterflies (compare above), and thus an indication of social organization. Nobody, however, pretends to know anything about how the chief exercises his authority. It is said that he surely can not have any great power, since the unity between the butterflies is that poor. Other Mbunda persons maintain that there certainly is no chief in the proper sense. People usually point at especially big butterflies, saying that they are chiefs, that is all, they report.

The butterfly's way of flying as well as its general pattern of movement for the rest attracts much attention. The villagers describe how it flutters with its wings and flies now here, now there with sudden chops to the sides. I am told that it never goes straight on. It is always fluttering. People do not consider it to be any first-rate flier. No, it is slow and unskilful, not being able to find the nearest way to the goal. No other creature flies in the same manner as a butterfly.

It is said that the butterfly usually flies approximately at the level of the head of a man.

Sometimes during sunny, hot days the butterfly gets tired of flying, and sits down on the ground, e.g. on a path, or on a branch to rest for a while. Then, as well as when it is sitting on a flower, it is in a habit of opening and closing the wings, unceasingly. According to the Ngangela and Cokwe it behaves like this, because it wants to fan and refresh itself, according to the Nkoya and Mashasha the reason is that it is about to free itself from its excrements. The Nkoya and Mashasha have a theory that the butterfly suffers from chronic constipation. My Nkoya informants think that still no human being has yet seen the butterfly's excrements (compare below).

If a butterfly is flushed, it will first take a jump from the support, and then spread its wings, I am told.

Except when the butterfly is resting, it flutters all the day around between different flowers, people report. Now and then it sits down on a flower, inserts its tongue into the flower aperture, and licks up the sweet juice. The villagers believe that the flower can then make new juice. As large flowers have more

juice than small ones, they are preferred by the butterfly. Large-flowered herbs grow particularly in dambos and in the forest-skirts, say the villagers. People have more rarely noticed that the butterflies in great numbers find their way to the different kinds of trees, when they are in bloom, and that they then hover about in the crowns. Some people assert that the butterfly also tastes the pollen of the flowers. Others maintain that this is wrong, and ask how the butterfly with its tongue would be able to lick up pollen. A man can not lick up dense porridge, they argue.

It is well-known that the butterfly likes to drink water. People report how they have seen it drinking at the river-bank, from moisture in clay-pits, or of spilt water in the village. If one has a gourd of beer, especially if it is mead, that is fermenting (this is considered to be the very best), several butterflies will often flutter around it. They try to get an opportunity to drink. Sometimes they happen to fall down into a gourd, which is not covered, and now and then a butterfly will get drowned.

Some women have also observed that butterflies are attracted by newly-pounded meal, as well as by white pieces of cassava roots, which after soaking in the river are dried on the grass-roofs.

The butterfly has habits of eating, which are thought to be very disgusting. People say that the butterfly eats everything that is stinking. It is the more delighted the worse the odour is, I am told. The liquid of rotten, fallen down fruits is a delicacy for a butterfly. It sips the liquid in excrements of both animals and human beings. This is the reason why one often sees butterflies hovering about over the privies in the surroundings of the villages. The Nkoya think that the butterfly prefers the excrements of the genet to those of all other animals, because they stink most. Above all the butterfly likes urine, however, people report. If one sees many butterflies in a place, one knows that somebody has urinated there.

The butterfly is said to find its food and its drink with the aid of its sense of smell.

At dusk the butterfly takes shelter in some nook, where it settles down among leaves or on grass. It sleeps with closed wings. During the rainy season it wakes up at dawn, during the cold season first later in the day, when it is getting warmer. In the winter the butterflies sleep many together, assert the villagers, in an ant-bear den or in some other hole in a tree or in the ground.

According to what people say the butterfly is afraid of heavy rain, which can knock it down and drown it. It must take shelter e.g. under bark or in some house in the village. Heavy wind is also dangerous for it. If it is blowing much, it

clings firmly to e.g. a grass-stalk. It runs the risk of being blown away to an area, where there is no food, or of getting its wings broken and falling to the ground, where its enemies can catch it. Storms and tornados take many victims among the butterflies, say my informants.

People consider the butterflies to be difficult to catch. They have hardly any special enemies, I am sometimes told. It is said that it is rather bad luck for a butterfly if it falls a prey to another animal. If it comes down to the ground, francolins and guinea fowls can surprise it and take it. A foolish butterfly, which is sitting on the ground without being on its guard, may be caught by the driver ants (Dorylus (Anomma), Formicidae Hym.). In the same way a butterfly, which sits down on a tree-trunk, where lixumambindu ants (Crematogaster, Formicidae Hym.) live, may be taken by them. Dead butterflies are eaten by the vuzili ants (Pheidole Formicidae, Hym.) and by the kambombo beetle (Tenebrionidae, Col.). Birds, which have the habit of being on the lookout for flying insects passing by, may also snatch butterflies. The bee-eater, the hoopoe, and the drongo are mentioned. The turaco, which as well as the butterfly is said to be interested in fruits, may take one or another butterfly, the villagers think.

Fish and crocodiles try to get hold of butterflies flying just above the surface of the water, I am told.

According to the Nkoya smaller feline animals as the wild cat, the genet, the serval and the lynx jump up into the air and seize the butterfly with their paws.

No informant mentions the mantis or the spider among the enemies of the butterfly. Now and then I saw a big mantis or a Salticidae spider, which, with an appearance that mimicked the pattern of colour of flowers, watched for e.g. butterflies visiting the flowers, seized them, and sucked them dry. These circumstances are not known in the Kalundu region, which is not surprising, as people do not concern themselves much with flowers or take much interest in them. Nor have my informants observed that butterflies get caught in the large webs belonging to different spiders (especially to members of the genus Nephila). These webs can during certain times of the year enclose whole trees.

Traditionally the butterfly is regarded as an abominable animal, about which nothing nice can be said. People say that it is hardly noxious or evil, but very disagreeable. It is an unpleasant sponger, attracted by excrements and urine. It is scornfully cunning, flying so slowly that one believes that one will be able to catch it, while it as a matter of fact is almost impossible to get hold of. It often flies just in front of one, but out of reach. Children sometimes test if this is true, and try to run after and seize a passing butterfly. As a rule they fail infamously.

Not even a sitting butterfly lets itself be taken in. Exactly when one is about to get it, it flies away.

The butterfly's bounding, fluttering flight with chops to the sides is considered to be a sign of madness. Also its habits of life for the rest indicate this, people think. Mad, insane persons often walk with bounding, aimless movements. The stroll now here, now there, and commit senseless, unexplainable actions, that cause offence. They usually can not attend to their work, but are always on their way to some other village. At last they disappear altogether from the district or province. Such a state may be temporary or chronic, my informants say. It may e.g. appear only when there is a full moon. A person, who is mad in the described way, is called a limbilimbili, that is a butterfly. Also a person, who seems to be a little peculiar, or who does something that is incomprehensibly foolish, senseless, or disgusting, may be called a limbilimbili. Moreover, an intoxicated person is named after the butterfly, as he or she can not walk straight on, but takes side-steps, unable to keep to the way, just as the butterfly. Old people can talk about the boozing butterflies, referring to people who are too addicted to drinking. Some old persons as well as some of the younger do not want to take part in the more and more common parties with distilled drinks, and they are anxious for the increasing drunkenness. It is not rare that the villagers get intoxicated four of the seven evenings of the week, or even more often. Old men and women, who dissociate themselves from this decay, as a rule keep to the traditional intoxicating liquors mead and beer.

Sometimes it is said of children, who run around playing, that they are like butterflies. Then one is thinking of the fact that butterflies always are in the habit of playing and chasing each other, when they happen to be in the same place. Children, who only want to play, and who bolt from the work, are also called butterflies, now and then, as they do not do anything but amuse themselves. A girl or a boy, who is like a butterfly, will never get any husband or wife, warn the old.

It is thought that the butterfly's madness can be transferred to a human being, who comes in too close touch with it. The wing-powder of the butterfly is considered to be especially dangerous. If one happens to eat some of it, one will go mad, I am told.

The fact that the madness of a butterfly can be given to a person has been made use of in various ways in the medicine. It is maintained that people often furtively try to put butterflies in each other's food, when they have fallen out with each other. Yet this method to bring forth madness in another person does not seem to be quite reliable. A Mashasha woman told me that when her

husband had once beaten her, she got so angry that she caught a butterfly and crumbled it into his beer, in order to revenge herself. She did not notice any effect of her action, and was sceptic concerning the common opinion about the dangerousness of the butterfly. A Nkoya doctor, with whom this method was discussed, asserted that this is just the kind of thing that people, who know nothing of medicines, can make up. The mentioned medicine is quite inoperative, he said. He could, however, provide a person with a powder, in which there enters a butterfly of any kind, the heart of a mad dog, and a piece of a root of a tree, growing close to a grave. Against this medicine there is no remedy, he maintained. Another Nkoya doctor reports that madness caused by medicine is not at all incurable. A person, who has been driven to madness in this manner, can be cured by a doctor's rubbing one or several butterflies all over his body. Mbunda doctors know of similar medicines, which cause or cure madness. According to some persons the use of such medicines should be regarded as witchcraft, while others think that it is permitted to make one's enemies except one's relatives at least a little mad.

Some men say that it can happen that a wife, who wants to get rid of her husband in order to marry another man, tries to give madness to her husband. They explain that madness is considered to be a valid reason for divorce. Nowadays this is probably mainly of historical interest, as divorces have become easier. The parties of a marriage can often simply separate. If relatives or one's spouse raise objections to the separation, one can always escape to town, where one is more inaccessible.

None of my informants compares the eye-spots of the butterfly wings with eyes. The idea to get frightened by them, as one lets oneself be frightened by the eye-spots of the lililo larva, has apparently not occurred to people.

The Nkoya say that when one has invited some people to a feast (which is nowadays synonymous with drinking-bout), uninvited guests often appear, suddenly, as by mere chance, and take part in the joy. Especially unwelcome guests are those who are greedy and who drink bravely, while they generously spread promises which they never fulfil, that they themselves soon will make a feast for all the present persons. They are unpopular, and people want to get rid of them. Thus some other guest or the host may say: Mbomba-nyaa. If the spongers hear this, they feel uneasy and go away. The old say refers to the story about the genet and the butterfly. It is said that the butterfly always comes to feast on the genet's excrements. The genet thinks that it is unduly exploited, and that the butterfly takes liberties with the property of the genet, without at any time inviting back. The cunning butterfly has, however, discovered that the genet

allows itself to be cheated, if the butterfly pretends that it will very soon offer the genet something nice. But, the Nkoya say, still no human being nor a genet has seen the butterfly's excrements (compare above). Yet, the unsuspicious and good-natured genet is easy to deceive. It believes again and again that the butterfly will really carry out its promise. And so the butterfly gets an opportunity to eat its fill.

People in the Kalundu region have commonly heard of the fact that Europeans have another attitude towards butterflies. Often my informants look for good qualities with the butterfly, in order to please. Actually it does not bite, and it does not eat people's food, I am told. Some pupils of secondary school and seminary, as well as some persons, who have worked with Europeans in town or at the mission, have seemingly taken over the European attitude, and declare that they, when they learnt that caterpillars develop into butterflies, gave up eating the larvae. They would feel sorry for the beautiful butterflies, they say.

In presumably all dictionaries and vocabularies terms for the butterfly are given, which is not true of terms for other in this volume treated insects. As a rule the butterfly terms are simply translated by butterfly. Sometimes the translation butterfly or moth is given, sometimes the translation moth. One can suppose that in most languages there is generally just one or a couple of words for butterflies, i.e. that the butterflies are not distinguished more than by the Ngangela and Cokwe.

Lindblom (p. 325) reports that the Kamba call all kinds of butterflies by the same name. This is also what Muller (p. 119) says about the Caga. Junod (1927, vol. II, p. 335) says that the Thonga denote butterfly and moth by one term.

It is, however, possible that some ethnic groups, just as the Nkoya, have more than one term denoting butterflies, but having different senses (see above). Thus two terms are given for the Tonga and Ila. Inkonkolekwa (Ila, Tonga), moth, butterfly (Torrend, pp. 83, 370), and ipempe (Tonga, Ila), moth (ibid., p. 370). For the Bemba the White Fathers note cibelebele, kind of butterfly (White Fathers, p. 147), cipelebesha, a butterfly (ibid., p. 209), mampapila, kind of butterfly (ibid., p. 720). The Southern Mbundu have according to Alves the terms -kolovya, big butterfly (Alves, p. 343), and -mbyambvulu, butterfly (ibid., p. 715).

Further it is of course probable that most peoples distinguish a few butterflies, as e.g. grain moths, from the common butterflies, and that there are some butterflies, which are not recognized, or which are included into other insect groups.

About the character of the butterfly HULSTAERT (p. 137) says that the Nkundo regard it as cunning, since it is so difficult to catch.

QUIN reports that no butterfly- or moth-eating could be traced among the Pedi (QUIN, p. 119).

EICHHORN (1918–1922, p. 56) says that Shamba boys and girls in the afternoon catch butterflies for fun, which they call fowls, and that in the evening they may return with perhaps 20–30 specimens.

Concerning statements about the connection between caterpillar and butterfly, that are to be found in the sources, see chap. 6, vol. 1.

Some information about hawk moths (Sphingidae) is given in the literature: Bolonjo (Nkundo) are big moths (Sphingidae), which the Nkundo say lack respect for burning copal, throwing themselves violently into the torch (HULSTAERT, p. 220). Kilamba moto (Shamba) is a species of privet moth (LANGHEINRICH, p. 147).

Namwanga persons, who saw hawk moths in my insect box, at once noticed the form of the abdomen, narrowing into a sharp point, and thought that it can sting worse than a bee.

Death's-head moth (Acherontia atropos (L.) (Sphingidae)

About the big, night-flying death's-head moth, which is about 4.5 inches across the wings, KROPF (p. 433) says that the Xhosa call it uvivingane, that it is found in beehives, and that the Xhosa believe that its sting is poisonous and are afraid of it. KRANZ (p. 170) reports that the Zulu call Sphinx (=Acherontia) atropos "the big bee", and that they fear much for its sting, which they consider to be mortally dangerous. BRYANT (p. 678) asserts that the Zulu term uvemvane denotes butterfly, moth of the larger kinds only.

It is probable that the Zulu and Xhosa know of the death's-head moth from beehives/beedrums, as the species has a habit of visiting these in order to eat honey. At Kalundu people do not know of this butterfly, and when I exhibited a living specimen, they were very surprised to find that it piped when touched. They also spontaneously noticed that it had a pattern of a death's-head, but they were not afraid of it, and did not think that it could sting. A couple of Kalundu villagers had heard about a very big king of the bees, looking like a butterfly and travelling around depriving the bees of their food, just like human chiefs. Chiefs were formerly notorious for robbing the subjects of food.

Kambumbu

Kambumbu, tu (Y, M, Nk, L, Luv, C), kambulu, tu (L), kambimbi, tu (C), kamburwe, tu (N) grain moth.

Sitotroga cerealella Oliv. and probably also other members of the family Gelechiidae (Lepidoptera); one or several species attacking grains of maize and sorghum.

Season: all the year.

The identification of the kambumbu moth is based on a study of moths from grains of maize and sorghum.

The Cokwe term kambimbi denotes all kinds of butterflies.

The Nkoya term kamburwe denotes all kinds of small, boring moths and beetles in wood and in grains.

The Ngangela term kambumbu is also applied to the vinegar flies (Drosophilidae, Diptera).

According to some Lucazi kambulu is the proper Lucazi term. According to others both the word kambumbu and the word kambulu belong to the Lucazi language. The Cokwe assert positively that kambumbu is a loan from the Ngangela and that only kambimbi is correct in the Cokwe language, where there traditionally is no special term for this moth, I am told. Nor do the Nkoya have any special name for it.

Sometimes people call the grain moth ntakuizi (M, Nk, L), takweji (Luv). These words ntakuizi, takweji denote primarily wood- and grain-boring beetles. According to the old as well as to many young people it is quite wrong to name the grain moth in this way, but if one wants to emphasize that the moth bores in maize and sorghum grains, one may say that it is (functionally) a borer, that is a ntakuizi, a takweji. Some young Ngangela persons, who are not familiar with the moth, and who have forgotten its proper name, call it ntakuizi, takweji, believing that they are right in doing so.

The Nkoya think that kamburwe is a derivation from kubura, to bore. Also the Mbunda, Nkangala, Lucazi, Luvale state when questioned that the moth is called after its habit of boring in maize grains. They do, however, not know the etymology of the terms kambumbu, kambulu. Possibly they have onomatopoetic origin. The stem -bu, -mbu is to be found in several languages in terms for small, slender, flying insects. Concerning the etymology of the word kambimbi, see above. Ntakuizi, takweji derive from taka, bore.

There is only one kind of kambumbu moth, people say. All individuals look the same.

The grain moth is well-known. The Cokwe maintain that there is only one kind of butterfly—the grain moth is of the same kind as all other butterflies. It is,

however, evident, that they distinguish it. They know that the damage in the stores is not caused by every butterfly.

The Ngangela, too, regard kambumbu as a kind of butterfly, or at least as its very close relative. The Nkoya, on the other hand, classify the moth together with wood-boring beetles, or even as a young wood-borer, which will later turn into a real, adult. Thus, the grain moth is, according to the Nkoya, not at all related to the butterfly, even if it is more similar to a butterfly than to a beetle. The Ngangela and Cokwe for their part do not want to claim kinship between the moth and the wood-borer.

None of my informants could give any more detailed description of the kambumbu moth beyond it's being very small and white, with dust on the wings.

About the reproduction of the kambumbu moth people do not know anything for certain, as it is so small, that one can not keep account of its doings, say the Ngangela and Cokwe. They think, however, that it brings forth living young, or that it lays eggs. The latter opinion is more common. The Nkoya maintain, that the moth's cycle of development is connected with that of the wood-boring beetle as well as with that of the grain-boring beetle. Some persons are more uncertain about what the connection looks like. Others say that the moth is transformed into a beetle, when it has grown and has lived long enough as a moth.

The circumstance that the moth lays eggs on the maize or sorghum grain, and that its larva is mining in the seed, has not been noticed by anybody. My informants believe that the moth itself is boring.

The old as well as some young people are familiar with the fact that the moth lives in the grains of maize and sorghum. Some Nkoya say, that it liked the finger millet, which was formerly commonly cultivated. For the rest it is said that the grains of bulrush millet (Pennisetum) are so small, that no moth can bore in them. According to Smit (p. 193) moths can develop in most kinds of cereals and also in beans and cowpeas. Old and more knowledgeable villagers at Kalundu asserted that this is wrong. There are no kambumbu moths except in maize, sorghum, and possibly in finger millet, they maintained. Several young persons told me, that the moth attacks all kinds of grains in the store, but this opinion rather reflects their ignorance.

The kambumbu moth comes flying from the forest to the storehouse, when the new harvest is taken in, or else it lives all the time at the bottom of the storehouse among straws, hulls, pods, dust, and other things forming a thick layer upon the grass rug, that is covering the floor. The house is built on poles. Those who think that kambumbu comes from the forest, report that it is

attracted by the nice smell of the maize grains. At first there are only some few moths, people have observed, then more and more arrive. Sometimes a whole swarm take flight, when one goes to fetch some maize. All through the dry season and during the first part of the rainy season the moths lead a happy life, but then the stored maize and sorghum peter out, and there is less and less for them to eat. Towards the end of the year some storehouses contain nothing but waste products at the bottom. Some women say that when they at this time search for grains, that have fallen away from the cobs, in order to gather enough for a meal of porridge, many moths hover up. Others report that when this difficult period comes, the kambumbu moths disappear, either to such villages, where there is still some maize to find, or else to the forest. The Nkoya assert, that most of them have grown into wood-borers, and that this is the reason why one does not see so many in the storehouses.

My informants maintain that kambumbu does not like the hull of the maize or sorghum seed. With the aid of its strong teeth it bores itself into the grain, which is crumbled to meal. This meal it eats.

Most of my informants believe that kambumbu does not have any enemies, but some persons have noticed, that many of the moths are caught in the cobwebs, which are to be seen both inside and outside the storehouses.

The kambumbu moths are by most old persons considered to be very noxious, but they do not primarily think of the fact that they bore in and eat from those maize and sorghum grains, which are intended for consumption during the year, but of the fact that they, if they get a chance, may destroy the seed for the next year. They know well, that a corn, in which a moth has bored, is unusable for sowing.

The opinions about the damage caused by kambumbu are, however, divided. My Cokwe and Nkangala informants say, that nobody has ever gone hungry because of the moth, and that it does not play any role if it eats and bores in one's storehouse. My Mbunda and Nkoya informants think, that it is bad and harmful, if the moths are too many. The Lucazi more definitely consider the grain moth to be a noxious creature, which should be checked.

The Lucazi maintain, that if one cleans the bottom of the storehouse from refuse, before putting in the new harvest, and if one regularly lights a fire giving off much smoke under the store, one will be spared kambumbu attacks. By clearing away the refuse from the last year's growth one gets better ventilation, and also better possibilities for the smoke to find its way through the floor. It is especially important to fumigate the storehouse during the rainy season, I am told. C. once a week one should make a good fire, which should then be allowed

to burn all the day, the Lucazi declare. The refuse should be burnt. These instructions are to a great extent followed in the Lucazi villages, to judge from my investigations. The Mbunda and Nkoya say, that they control the moths, if they are too many, by the same methods as those used by the Lucazi, but when the matters are further discussed, it appears, that only very few persons have ever taken any precautions. There seems also to be more moths in the Mbunda and Cokwe storehouses than in those belonging to the Lucazi.

The Nkangala and Cokwe think, that it is quite unnecessary to control the moths. In Nkoya storehouses, as well as in most Mbunda and Nkoya ones, the bottom layer is not swept away during all the time the house is in use. One should perhaps not be surprised to find that mould sometimes is found there. The fact that the cooking-place, where the woman cooks the food or sits in the warmth, often, particularly during rainy days, is situated under the family store, has no connection with combatting of kambumbu moths, people say.

Traditionally people reserve immediately after the maize harvest some ears for sowing. The corns are picked off the cobs by hand, and are put into a clay pot or a gourd. People lay aside so much, that it will be enough for sowing and resowing up to three times in the fields of the household. The headman has often a larger store of seed for sowing, because to him the other villagers come, if their own supply is finished. In order to guard the seeds from the kambumbu moth people cover them with a 2–3 cm thick layer of sand. Over this they finally put a lid, e.g. another vessel, to prevent rodents from digging themselves down through the sand. The pots with seed are stored scrupulously in a way to ensure as complete safety as possible, preferably in the dwelling-house. Old people remember years, when the moths have got at the seed and destroyed a great part of it. Especially if people in such a year had to resow several times, e.g. because of too little rain in the beginning of the rainy season, it could mean catastrophe and famine. The old people are still very afraid that something will happen to their seed. Particularly the Nkoya can report about years with destroyed seed and following hard times. Yet the Nkoya have taken and still take care of their seed as well as the immigrants from Angola do. But the Ngangela and Cokwe cultivated cassava and bulrush millet to a larger extent than the Nkoya did, and thus they were not as dependent upon maize, finger millet, and sorghum. On the whole it seems as if the Ngangela and Cokwe have been better off with food than the Nkoya, even if they, too, have now and then met with disaster.

People think that the layer of sand can completely prevent the moth from attacking the corns. The moth would get drowned, if it tried, say some of my informants. Others maintain, that it can not feel the smell of the seed through

the sand. Also according to SMIT it seems to be true that sand is a good protection against moths. He states, that the soft-bodied moth does not go deep down among the maize grains, but stays at the surface (SMIT, p. 193).

Corns, in which kambumbu moths have bored, are useless for sowing, old people know. By scrutinizing a grain one can easily see if it is attacked or not. One should look for a small point, where the moth, according to the general opinion, has bored itself into the grain. If one finds such a mark, one can as well reject the corn, explain the villagers. In reality the larva of the moth has, before pupating in the grain, gnawed a passage out towards the hull, so that nothing but a thin membrane is left as a border against the outer world. The newly-hatched moth can then find its way out through the membrane, which may be seen as a small spot or as a protuberance on the surface of the corn. It is for this point people look, when they are about to decide if a seed is destroyed or not.

Young people handle often their seed carelessly, according to the old. There is a tendency among young peasants to let part of the maize remain on cob in the cultivations for a considerably longer time than necessary. The old think, that this is unresponsible. One runs the risk that monkeys, elephants, or other animals will plunder one's fields, they assert. As the young people have not experienced such ravages, they think it is an exaggerated fear.

According to SMIT (p. 192) Sitotroga cerealella can fly from an infected store to a cultivated field, in order to attack still unharvested corns. Even if the seed is then kept safely, it may be damaged. None of my informants conceived of this risk.

Further it is said that young people do not bother to separate the seeds from the cobs. They simply put cobs with seeds meant for sowing in a little heap in the storehouse, quite openly. In that way the moths can easily bore into most of the grains.

I could establish that young peasants, especially those who have spent much of their time in town, often do not know of the damage of the kambumbu moth, or in any case believe that it is unimportant. Up to 90% of the corns they have meant for sowing could be attacked. As they have noticed that the germinating power is low, they often sow the corns 3 and 3 or 4 and 4, instead of 2 and 2 as people have used to do. If more than one plant shoot up in one place, all but one are replanted in places, where there has not come up anything at all. The young people readily accuse the click-beetle larva (wire-worm) (Elateridae, Coleoptera) of the bad fertility, saying that it eats the sown corns, if there is no evident cause, as e.g. late rains. Many of them do not believe what the elderly say about the kambumbu moth.

When I ask these young peasants why they are not more careful with their seed, they say, that nowadays there are new kinds of maize, which give higher yield and for which the old rules are no more valid. The new maize ripens earlier, and if one only has artificial manure, one can grow it year after year in the same field. It gives such a high produce, that if also the moth destroys some, there will always be enough seed left. Some persons have heard a report that European kinds of maize are not attacked by damaging kambumbu moths, because they are treated by special, protecting medicines, and that one accordingly does not need to take any precautions. Moreover, there is nowadays always somebody from whom one can borrow or buy seed, and thus it is not that dangerous to lose one's own. And there is no risk for any more general shortage, I am told, because if famine is threatening in one area, the government, UNIP, Namboard, or the missionaries will at once come with great amounts of meal for making porridge. Huge quantities of meal are stored in different places, people pretend to know.

The result of this diminished carefulness about the seed is that the young people often have much smaller fields than the old, that some of them plant cassava mostly, and that in December, January, before the ripening of the new maize, they come to their elder relatives to borrow from their stores. According to the old people they borrow also seed, often. Several young persons asserted, that if they had had more seed, they would have grown larger fields of maize.

Some information about the grain moth is given in the literature. Thus the Herero term oruvingo denotes corn and rice moth (IRLE 1917, p. 430). The Tswana term phoha denotes moth eating stored corn (BROWN, p. 251). The Zulu term ibu denotes common grain moth (BRYANT, p. 50) (compare below).

Clothes moth (Tinea etc., Tineidae)

The clothes moth attacks skin rugs, wool, feathers, etc. The larvae eat holes in the material. This moth is not known at Kalundu and nobody has ever heard of it. Yet it occurs at Kalundu, but its activity is overshadowed by the cundu (Dermestidae larvae, Coleoptera), the effects of which are more conspicuous, and very well-known. I saw attacks of the moth on the head ornament of a Nkoya doctor as well as on skin. When I pointed at the larvae, people supposed that they were cundu larvae.

HÄFLIGER (p. 182) states that the Matengo know that the moth ngulukulu eats clothes. The Herero call the clothes moth etoto and its pupa oruundu (IRLE

1917, p. 238). According to BRYANT (p. 50) the Zulu term ibu denotes clothes moth as well (compare above). SNOXALL (p. 135) gives the Ganda term kikutuzi, denoting kind of small moth very destructive to clothing.

Case-bearing clothes moth (Tineidae)

This moth attacks horns of dead animals, which become closely covered by small, grey cases. I found only one person, an old Nkoya hunter at Mangango, having a buffalo head with heavily infested horns, who knew that the damage and the excrescences were caused by insects. He said that livuno larvae (maggots) were the culprits. Otherwise hunters of the old stock know that horns little by little get destroyed, if they are not used.

Wax moth (Pyralididae)

The wax moth (type Achroia grisella), which attacks and destroys beeswax, is not known in the Kalundu region, but it occurs there.

CHAPTER 15

Earwigs

According to the Nkoya and also according to some Ngangela and Cokwe the earwig should be classified together with the scorpion. Some, mostly old, Nkoya even regard it as a female scorpion. Other Ngangela and Cokwe group the earwig together with the kanguengue larva, saying that kanguengue is transformed into an earwig, when it is old enough. Now and then I am told that there are two different kinds of creatures, the kambandamukue earwig and the kanguengue earwig, which are close relatives, the first being also related to the scorpion, the second being related to or rather developed out of the kanguengue larva.

As the Ngangela and Cokwe relatively often consider the earwig to be an old kanguengue, I have found it reasonable to treat it together with the caterpillars, in this volume.

All the ethnic groups at Kalundu distinguish the earwig. It is characterized by its pair of pincers on the abdomen. Mostly only one kind is said to exist, but some Ngangela and Cokwe maintain that there is one kind living in the forest, and one living in cabbage and maize.

Entomologically the one or two ethno-species earwig correspond to the family Forficulidae, Dermaptera.

The earwig is considered to be inedible.

Kambandamukue

Kambandamukue, tu (M, Nk, L), kanguengue, tu (M, Nk, L, C), ndendungule, va, vi (L, Luv, C), kangwengwe, tu (Luv), cengocengo, -(C), kapiriri, tu (N) earwig, Forficulidae, Dermaptera; many species lives in bark, maize, cabbage.

Season: all the year.

The identification is based on observation and on descriptions given by my informants.

The terms kanguengue, kangwengwe, cengocengo properly denote caterpillar- and maggot-like larvae, living internally in plants (see kanguengue). Some persons, who think that these larvae develop into earwigs, name the earwigs after them. Especially those who do not know the earwig's, according to what many Ngangela and Cokwe maintain, true name, tend to call it after the kanguengue larva. Others assert that an earwig in the forest is a kambandamukue, ndendungule, while an earwig in cabbage or maize is a kanguengue, kangwengwe, cengocengo.

Most of my Ngangela and Cokwe informants consider kambandamukue,

ndendungule to be the proper term of the earwig. The Lucazi as a rule hold to the term kambandamukue.

The Nkoya term kapiriri denotes also scorpions.

Kambandamukue, ndendungule, ndandungule (Ng), poisonous insect resembling caterpillar; ndendungulu, ndandungule (Ng), sp. of poisonous insect (PEARSON).

Kambandamukue is said to be a compound of mbanda, cling firmly to, and mukue, that is a derivation from mukuve, the tree Cryptosepalum pseudotaxus. Sometimes the word mukue is used for denoting bark-ropes from this tree, the bark of which is considered to be the best for ropes. The earwig is named after its habit to stay in bark-fissures, I am told. Ndendungule is derived from ndendenia, gnaw with points of teeth. This is what the earwig does, people assert. Concerning the etymology of the terms kanguengue, kangwengwe, cengocengo, see p. 147. None of my Nkoya informants could suggest any derivation of the term kapiriri.

Mostly it is said that there is only one kind of earwig. Some Ngangela and Cokwe report that there are two kinds, one living in bark, one living in maize and cabbage. Those who give different names to earwigs in bark and earwigs in cultivated plants are generally very uncertain about their relation. In some cases it is evident that people have not at all thought of the fact that the kanguengue earwig resembles the kambandamukue earwig, and that they regard them as two quite distinct creatures. My more knowledgeable informants as a rule protest against this opinion.

The Nkoya sometimes distinguish between the scorpion and the earwig and say that they are two different, related kinds of kapiriri, but sometimes I am told that they are husband and wife, or one and the same kind.

The Ngangela and Cokwe mostly mention the scorpion as the closest relative of the earwig. They both sting with the abdomen, assert my informants, and they are both to be found in bark-fissures (there is a small, c. 40 mm long type of scorpion, which often stays under bark on e.g. the mukuve tree (see above)). Those Ngangela and Cokwe who distinguish the kanguengue earwig as a special kind relate it to the kambandamukue earwig of the forest if they come to think of it. Otherwise they say that the kanguengue earwig has no relatives.

I am told that all earwigs are similar in appearance. People describe an earwig as small and oblong. It has two horns or teeth on the end of its abdomen. Further it has two eyes, a mouth with biting teeth and 4 legs. Some persons have noticed that it has wing-stumps on its back, just as a young locust. Some of my Mbunda informants knew that a couple of large, light wings hide under the

wing-stumps. The earwig is brown or black, say the villagers. According to a few persons the earwig living in cabbage or maize has a yellow or red spot on its back. A couple of informants maintain that it is the wing-stumps that are yellow or red.

Bigger, c. 20 mm long earwigs with a conspicuous pair of pincers are often recognized. Smaller, c. 10 mm long types with pincers that are not very conspicuous are seldom identified before the pincers have, after scrupulous examination, been discovered. If the pincers are removed, the earwig is not identified.

According to one opinion about the life cycle of the earwig it is an adult kanguengue larva (see kanguengue). This theory is represented among the Ngangela and Cokwe but not among the Nkoya. Some Ngangela and Cokwe think that only the kanguengue earwig in maize and cabbage is developed out of a larva. A few Ngangela and Cokwe persons maintain that the earwig is a grown-up cutworm (see likundulu), which has turned directly into an earwig, without becoming a kanguengue larva first.

According to another opinion, which is the most common one among all the ethnic groups at Kalundu, at least the earwig, which is living in bark-fissures, lays eggs or brings forth young, and the children are similar to grown-up earwigs, except that they are small.

Some informants connect the earwigs, which are to be found in maize and cabbage, with those which can be seen in bark-fissures, thinking that an earwig that has been living in the maize comes forth, when the maize is about to be harvested (Feb.–May), and flies to the trees in the forest, then flying on to the cabbage, when it starts to grow big (c. Sept.).

According to one view, which is common among old Nkoya persons, the earwig is the wife of the small scorpion which is living in bark (or generally of the scorpion). The boys, which are born in the marriage, resemble small scorpions, while the girls resemble small earwigs, I am told.

The earwig is said to live in bark-fissures on Cryptosepalum pseudotaxus trees, but also on other kinds of trees. Further it is said to dwell in the cultivations, both in the forest and on the river, in the leaf axil of maize respectively between cabbage leaves.

My informants assert that the earwig is to be seen all the year, and that it is as common in Zambia as in Angola.

Mostly the earwigs live one by one, but sometimes one can find several together in bark or between cabbage leaves, I am told. They are not very common, but one comes across them now and then.

In the bark the earwig gnaws and eats its way forward, so that the sap breaks

out. It supports itself on sap. In the same way it bites in maize stalks, maize ear, cabbage-head and sucks up the juice. It always prefers to live concealed in plants.

The earwig is considered to be inedible.

Those who know the earwig regard it as an unpleasant animal. Firstly people look upon it (alternatively only on the kanguengue earwig) as a destroyer of maize and cabbage, secondly they think that it can deal out painful stings with the pincers.

The earwig that lives in maize and cabbage (according to some=the kanguengue earwig) damages the maize and cabbage exactly in the same way as the kanguengue larva does, people say. Some young persons maintain that it not only eats in the plants as the kanguengue larva, but that it also cuts off young cabbage plants and possibly young maize plants with its pincers (see likundulu).

Some informants maintain that the earwig causes as much damage as the kanguengue larva does. Others consider the larva to be much worse.

As a rule people do not think of the pincers of the earwig that is found in maize and cabbage as dangerous. They are only small, and can probably not hurt much, I am told. Yet one should be careful, because nobody knows how strong they are.

The Ngangela and Cokwe as well as the Nkoya regard the earwig, that is living in bark-fissures, as a disagreeable and dangerous creature. If one comes across it, e.g. when one is peeling off bark for ropes or for a vessel, it lifts its abdomen just as a scorpion and strikes its teeth into the victim's skin, pinches, and secretes a poisonous liquid. An earwig, that is hurrying off, lifts its abdomen and cuts with the teeth or with the points of the teeth, report the villagers.

Informants, who do not distinguish earwigs in maize and cabbage and earwigs in bark as two different types, count generally upon all earwigs as dangerous.

According to one opinion, which is common among people, who are not very familiar with the earwig, one can die from its sting. Otherwise people are rather unanimous that the stung spot will swell and pain for a couple of days, but that it is not at all so bad as a scorpion sting. On the whole the earwig seems to be overshadowed in people's mind by the much more dangerous scorpion. But some Nkoya, who, as I have mentioned, consider the two to be more closely related, assert that they are equally bad.

It is generally said that the earwig is not especially aggressive, except when it is disturbed.

People in the Kalundu region have never heard of the in Europe widespread idea that the earwig should want to get into the head through the ear.

In the medicine the earwig plays a role. A Mbunda doctor says that he has reached excellent results in the treatment of gonorrhoea (probably=different maladies in the male and female sexual organs) by using a remedy with the earwig as ingredient. There exists by the way a very rich flora of medicines for treatment of, as it is said, gonorrhoea.

In the literature it is told that the Lulua name both the earwig and the centipede (skolopendra) by the same term—kaminyi (Gabriel, p. 67). About the earwig Müller (p. 33) says that the Caga fear it for the same reason that it is feraed in Europe. He probably intends to say that they believe that it creeps into the ear. According to Madan (p. 89) kamini (Lala, Lamba, Bisa) is a small, biting, or stinging insect, like a small scorpion. My Bisa informants used the term both for earwig and for the earlier mentioned small type of scorpion.

Summary

Kalundu is the name of a village cluster on the Luena river close to Mangango in Kaoma District, Western Province, Zambia. The landscape is dominated by dense, deciduous miombo forest, consisting mainly of Julbernardia paniculata. Two other forest types occur within reach, namely deciduous Burkea africana and Erythrophleum africanum forest, and dense, evergreen Cryptosepalum pseudotaxus forest. Evergreen gallery forest along the river is lacking or scanty. Miombo forests of the genera Julbernardia, Brachystegia, and Isoberlinia dominate the vegetation in western Zambia and eastern Angola. They are found in Central Africa between the rain-forest in the north and Acacia and Colophosphermum mopane country in the south.

Another characteristic feature of the Kalundu landscape is the dambo, which is tree- and shrub-less grassland, usually associated with the watercourses.

The vegetation binds the Kalahari Sands that cover most of the district as well as most of western Zambia and eastern Angola.

The principal seasons are the rainy season (c. November–March), the dry and cold season (c. May–August), when the deciduous forest stands leafless and the grass wilts, frost occurs, and most watercourses dry out, and the dry and hot season (c. September–October), when the forests burst into leaf.

Kaoma District is sparsely populated by subsistence cultivators living along the watercourses. The staple crops are cassava, bulrush millet, and maize. In the abandoned cultivations a dense vegetation of species characteristic for the forest edges together with coppice and regenerating young forest trees occurs.

Among the subsidiary means of livelihood gathering is most important followed by small-game hunting, while fishing and animal husbandry are of minor importance. The villages are usually small with c. 5 households in each. The continuous concentration of the villages to a few densely populated agricultural settlements with access to road, school, hospital, church is characteristic. In Kalundu dense settlement occurs in the west, while traditional scattered villages are found in the east.

Two main population elements occur: the Nkoya and the Mbunda. The Nkoya are the original inhabitants. The Mbunda as well as e.g. Lucazi, Nkangala, Cokwe people have fled from Angola after wars with the Portuguese. Today the immigrants greatly outnumber the Nkoya. The first wave came between

1920 and 1945, the second from the end of the 1960:s. The main spoken languages in Kalundu and in the Mangango region are Mbunda and Nkoya.

The dense forest country is poor in traditional resources. The Nkoya being riverain sedentary peasants adapted themselves to the resources of the country by living in small scattered villages. They could thus stay in the same area for generations without wasting the resources. The arrival of the immigrants had a profound influence on Nkoya culture and economy. The Nkoya adopted the agriculture of the Angola refugees with its to the Nkoya new cultivated plants and high-yielding varieties. However, competition between the Mbunda and the Nkoya arose concerning the subsidiary resources. The Mbunda were on the whole more successful than the Nkoya. They were used to live in big villages with the resulting competition for the natural produce, which forced them to move far away from the villages. The Nkoya on the other hand were used to find what they looked for in the neighbourhood of their villages or along the watercourses.

The big-game was exterminated from the Kalundu region in the fifties. The small-game as well as produce of gathering is becoming scarcer. The Luena is nowadays almost empty of fish due to the concentration of population and to the effective fishing methods.

Mbunda and Nkoya systematics of caterpillars

It should perhaps be emphasized that the Mbunda and Nkoya have advanced traditional classification systems of caterpillars, as the existence in Bantu-speaking Africa of such systems does not seem to be acknowledged by Western science.

The Mbunda and the Nkoya use on the whole the same principles of classification, but the Nkoya distinguish fewer kinds of caterpillars, and thus their system is thinner. Within the respective ethnic groups there is quite great unanimity about how the caterpillars should be systematized.

In traditional Mbunda and Nkoya ethno-entomology the liungu (caterpillar) category is placed on the same systematic level as the kalongolo category, comprising most other creeping animals of the insect order and also many other small invertebrates and vertebrates. The term liungu has very closely the same reference as the English term caterpillar. A liungu should be a larva with oblong cylindrical body, and should feed externally and visibly on leaves or grass. Only a few kinds (ethno-species) of larvae are counted as liungu larvae, in spite of the

fact that they do not quite fulfil these requirements—they are the stalk borer and the cutworm (which are regarded as liungu larvae by some Mbunda persons, as kalongolo insects by other Mbunda as well as by the Nkoya), the mucebu larva (which is known only by the Nkoya), and the bagworm. Actually these kinds of larvae are considered to be only distantly related to the other liungu larvae. Sometimes it is said that they are to be sure liungu larvae, but not true ones.

Often the term liungu is used with the more limited meaning edible caterpillar. Sometimes it is given the meaning smooth-skinned caterpillar.

I am told that there exist many kinds of useless, nameless caterpillars, about which nothing is known. People are seldom or never acquainted with caterpillars that are not traditionally known and named. The fact that a larva does not have any name is regarded as a proof that it is without interest for man. An example of a common, big, gaudily coloured caterpillar that is not named, not known, and as a rule also not observed is the larva of Acherontia atropos (Sphingidae). Those kinds of caterpillars which are distinguished by the Mbunda but not by the Nkoya, and which are common in the Kalundu area, are not at all recognized by the Nkoya.

Among the traditionally known and named caterpillars the majority are edible. Others are considered to be dangerous or to be important in one way or another. The Mbunda distinguish at least 31 kinds of edible caterpillars. The Nkoya distinguish at least 12 kinds. Most of these ethno-species correspond each one to exactly one entomological species. Furthermore the Mbunda distinguish and name at least 5 kinds of inedible caterpillars. The Nkoya, too, distinguish and name at least 5 kinds of inedible caterpillars. As a rule each one of these inedible ethno-species corresponds to many entomological species.

Caterpillars belonging to different ethno-species can not, according to my informants, mate. They have about the same appearance, but in some cases, e.g. when it comes to the larva of Nephele comma, there are different colour varieties. Further they have the same behaviour and habits. They all appear at about the same time, or, if they come in two or more generations in one year, at the same times. They feed on the same leaves or grasses.

The ethno-species of caterpillars are grouped together into small groups according to two different principles. Most often they are classified after edibility and morphological characters into up to 12 groups. Sometimes they are classified after their host-plants, all caterpillars having the same host being brought together.

At a higher level e.g. edible and inedible, or smooth-skinned, spiny, urticant,

and hairy but not urticant caterpillars are distinguished. On this level also unknown caterpillars are systematized.

People think that there is a very close connection between a caterpillar name and its bearer. As a rule each name refers to only one ethno-species. The name is said to have been given by the ancestors long ago. Among the names are some that point to the host of the caterpillar in question, others point e.g. to some characteristic feature in the appearance or behaviour of the bearer, to the time when it occurs, or to the reaction of a person who meets it.

During later years there is a tendency to decline of the traditional caterpillar systematics, especially among the young. More rare or unpopular kinds of caterpillars are forgotten, names fall into oblivion, uncertainty is felt e.g. about which larvae that feed on the same tree, or about which that have a certain morphological character. In some extreme cases, especially among secondary school pupils, hardly anything is known about the caterpillars. Also the increasing use of descriptive terms pointing out host-tree, in cases where the traditional name is not at all of this kind, sometimes even when it comes to unknown larvae, should be noted. An important contributory factor to the disorder is the mixing of languages and dialects, bringing numerous terms for the same liungu into current use. Disagreement about use, reference, and language affinity of the caterpillar terms has created great confusion, which in itself helps to speed the disintegration of the system. Another important factor is the circumstance that many people have finished eating some or all kinds of caterpillars, and thus lost interest in them.

Life cycle

The Mbunda and Nkoya generally say that all known, and probably also many unknown, caterpillars, except for the larva of Anaphe infracta, the cimbua larva, the stalk boring larva, the cutworm, the bagworm, and the mucebu larva, have the same life cycle. The opinions about this life cycle differ when it comes to the question of reproduction, early stages, and pupation, but concerning the development of the larva from the so called ciliaza stage, when it is very small and yet has an obvious caterpillar appearance, to the pupation people are on the whole unanimous, and have often quite detailed knowledge. This mirrors the fact that while no caterpillar is regarded as edible before the ciliaza stage, one kind (kavambe) is eaten, when it has reached it. As a rule people have studied and gathered knowledge about the edible stages of a caterpillar, and are ignorant about the rest of its life—in fact they observe it first when it has already

passed more than half its life as a caterpillar and moulted more than twice. Although only kavambe is considered to be edible and is studied as early as in the ciliaza stage, people generalize and say that what holds good for it is certainly true also about the others.

Up to 14 caterpillar stages and 1 pupal stage are distinguished, partly with the aid of special terminology, by the Mbunda and Nkoya. So many stages are, however, according to what people think, only passed by caterpillars, which are said to moult three times. Other kinds of caterpillars moult twice, once, or not at all, people maintain, and thus pass through only a lesser number of stages. Those caterpillars which are thought to grow without any moulting are either such that have inconspicuous moulting habits (Sphingidae, Noctuidae), or such that are relatively little known. Caterpillars that moult in solitude are distinguished from caterpillars that moult in collective. Behavioural and bodily changes in connection with moulting and pupation are observed. About some kinds of caterpillars the Mbunda and Nkoya know that they have different colour and ornamentation before moulting and after. Furthermore people as a rule know if an edible caterpillar pupates in the ground, or if it makes a cocoon in the tree, and if it in the former case buries itself just under the crown of the host, or if it disappears so that it is no use to look for it.

I have distinguished 6 theories about the reproduction of the caterpillars.

1. the caterpillars come with the rains.
2. the caterpillars are born out of the trees, each kind from its kind of tree.
3. all caterpillars are of the same sex; the adult caterpillar lays eggs or brings forth living young.
4. there are males and females among the caterpillars; the adult female (lays eggs or) brings forth living young.
5. there are many different kinds of butterflies, among which the females lay eggs (or brings forth living young), out of which the caterpillars are developed.
6. there is a special kind of butterfly, a mother of the caterpillars, which lays eggs (or brings forth living young), and which is alone the origin of all caterpillars.

The last of these theories I have only found among the Nkoya. The others are delivered as well by Nkoya informants as by Ngangela and Cokwe informants. The three first of the theories are relatively rare.

I have distinguished 2 theories about the pupation and the pupa. According to one a butterfly emerges from the pupa. According to the other the pupa dies and becomes nothing but sand. The latter view is more common among the Nkoya.

I have distinguished 2 theories about the new-born or new-hatched larvae. They are sometimes said to be in the ciliaza stage from the beginning. Mostly they are said to be livuno larvae (=maggots), which develop into the ciliaza stage.

Now there are often inconsistencies between a person's different statements concerning the development of a caterpillar. Thus somebody who has just said that a caterpillar grows out of a maggot, which has hatched out of an egg laid by a butterfly, may very well maintain that all caterpillar pupae die, and that there is no connection between a caterpillar and a butterfly. Or a person, who asserts at one time that the pupa hatches into a butterfly, and that this butterfly lays eggs out of which the caterpillars develop, may at another time say that caterpillars are the parents of caterpillars.

It is unclear if the idea that the butterfly emerges out of the caterpillar pupa, and that it then lays eggs which hatch into caterpillars, is traditional or if it is a recent introduction. Yet there are reasons for the hypothesis that it is of European origin and not traditional.

Caterpillars as food

Cultural factors determine whether caterpillars are regarded as edible or not. A non-caterpillar-eating people may very well live in the same environment as a people regarding caterpillars as nice food. The Mbunda and Nkoya belong to the caterpillar-eaters, while the Lozi belong to the peoples that do not eat any at all. There is a sharp difference in attitudes towards caterpillars between eaters and non-eaters. The latter are little acquainted with the larvae, observe them only by accidence, and are afraid of them roughly as of snakes. Consequently they react with horror on the mere thought of tasting caterpillars, and despise those who eat them. The caterpillar-eaters, on the other hand, appreciate the larvae as delicious food. Only imagos of termites (Isoptera) and honey are mentioned as more dainty.

The fact that the Mbunda and Nkoya eat caterpillars does by no means imply that they eat any caterpillar. The tradition decides for every certain kind of caterpillar if it is edible or not. A traditionally unknown caterpillar (e.g. the larva of Acherontia atropos, Sphingidae) is regarded as inedible, even if it looks like a titbit. People say that the edible kinds were selected by the ancestors long ago, and suppose that no doubt the ancestors had reasons for rejecting some kinds. Perhaps the inedible caterpillars are poisonous or dangerous in some other way.

Caterpillars are regarded as edible by most inhabitants in Zambia, Angola, Zaire, Malawi, South West Africa (Namibia), South Africa, Lesotho, Swaziland,

Botswana, Rhodesia (Zimbabwe), probably Moçambique, southern and western Tanzania. They are probably regarded as inedible in Rwanda, Burundi, Uganda, Kenya, and northern and eastern Tanzania. Further there are some peoples in Zambia and in Zaire that do not eat them.

There are considerable ethnic differences concerning the utilization of the caterpillar fauna between different caterpillar-eating peoples. The habits of the Nkoya and allied peoples are sharply distinct from those of the Mbunda and allied peoples. The Mbunda regard c. 31 kinds, the Nkoya c. 12 kinds as edible. All the caterpillars eaten by the Nkoya are also eaten by the Mbunda. Eleven of the caterpillars eaten by the Mbunda, that I have found present in the Kalundu region, are refused by the Nkoya.

During the cold season the Mbunda and Nkoya eat the same kinds of caterpillars. During the major season, in October–November, the only difference between Mbunda and Nkoya persons living at Kalundu is that the latter reject the semi-loopers (e.g. the well protectively coloured larva of Sphingomorpha chlorea, Noctuidae), which are abundant certain years, rare (according to my informants vanished) other years.

The divergences become marked in the minor season, when there are 8 kinds of caterpillars found in the forest, the forest edges, and the abandoned cultivations, that are regarded as edible by the Mbunda but not by the Nkoya. The 3 kinds of caterpillars living in the dambo that are eaten by the Mbunda during the same time are also eaten by the Nkoya. Most of the kinds of caterpillars rejected by the Nkoya but not by the Mbunda occur in small groups, are of small size, are less common, or are spiny. It is possible that a cause for the differences between Nkoya and Mbunda traditions concerning these caterpillars is that the Nkoya used to have less contact with the forest during January–May than during the rest of the year. During the rest of the year they gather forest caterpillars to the same extent as the Mbunda do. The Nkoya have a tradition saying that they long ago lived on the Barotse Flood Plain. Another possible explanation is that the Nkoya originally used to have greater richness of food during the minor season than the Mbunda, and that they consequently did not rely so much on gathering.

The Nkangala, who are known to be greater hunters and gatherers than the other Ngangela, eat two kinds of small caterpillars—stalk borers in maize stalks and Holocerina agomensis, Attacidae—, that are rejected by the others.

Caterpillar pupae are regarded as edible by the Mbunda, not by the Nkoya. Otherwise the Mbunda and the Nkoya have on the whole the same ideas about edibility of different caterpillar stages.

Of the whole Lepidoptera fauna only very few species are utilized as food. The most important of the families is Attacidae, the emperor moth family, which comprises comparatively many species both of common, big, and gregarious caterpillars. About half the number of caterpillars regarded as edible by the Mbunda are Attacidae caterpillars, while the others are distributed among some different families—Sphingidae, Notodontidae, Noctuidae, Lasiocampidae, Limacodidae, and perhaps a few more. Also if one considers the total amount of caterpillars eaten, one will find that people gather and eat most often Attacidae larvae.

Among the causes for the fact that no more kinds of caterpillars are used as food the following may be mentioned: most kinds of caterpillars are too small, too rare, too well protectively coloured, too urticant, solitary or else living in too small groups. On the whole it may be said that especially the Mbunda and allied peoples have utilized the caterpillar fauna in their environment very well. Thus they gather the pupae of inedible urticant caterpillars. They have also learnt to gather kinds with urticant hairs and to prepare them as food, and to cook poisonous caterpillars with ash-water or to boil them several times in order to remove the bad effects. Furthermore, they have learnt to distinguish extremely well protectively coloured caterpillars and gather them.

If one is to be successful in gathering a kind of caterpillar, one should have a competent knowledge of its appearance, of its host-tree and season, of such habits that influence one's possibilities to catch sight of it and to gather it. The more common, gregarious, big, and appetizing a caterpillar is, the better it is, as a rule, known.

When it comes to a relatively well-known kind of caterpillar, people can give general information about ornamentation, colour pattern, and size. Less conspicuous features as spiracles are overlooked. People do not count segments or legs. Different persons often give conflicting descriptions of one and the same kind of larva, but these disagreements primarily simply demonstrate the difficulties in giving an accurate account of the larva in question. Displayed specimens of well-known caterpillars are generally recognized. The appearance is rather learnt by practice than by descriptions.

The value of different habitats for caterpillar gathering varies greatly. The dambo is relatively poor in kinds of edible caterpillars. The richest forest type in the Kalundu region is Julbernardia paniculata forest, followed by Burkea africana/Erythrophleum africanum forest, while Cryptosepalum pseudotaxus forest is poor. Brachystegia spiciformis forest, which occurs elsewhere, is rich, while Isoberlinia angolensis forest is poor. To the north the importance of gallery

forest for gathering of caterpillars increases. Outside the dense forest zone, Acacia grassland is poor, while Colophospermum mopane areas are rich. Several kinds of edible caterpillars are to be found in the forest edges, where many species of trees and shrubs, that do not thrive in the respective forest type, grow.

In the coppice-wood of the abandoned cultivation most kinds of trees that occur in the region, and thus also those edible caterpillars that feed on these trees, may be found, but the catches are generally not so good as in the forest. On cultivated plants only 2 kinds of edible caterpillars live.

I have listed about 30 host-plants for edible caterpillars. This number is quite small, compared with the total amount of plant species in the region. All the mentioned host-plants are very abundant in western Zambia as well as in eastern Angola. Caterpillars that feed on more rare plants are not noticed. Many of the edible caterpillars are polyphagious. All the listed hosts have been pointed out by villagers, who also know that a caterpillar is most common, where its host is dominant, while it is more sparse, where its host is common but grows scattered among other trees, and that real outbreaks of a kind of larvae occur only where the host-plant is dominant. Each kind of caterpillar is available in edible stage only during a limited period, usually c. 3 weeks. Some kinds are known to appear in two or three generations, and are consequently to be found during two or three different periods.

There are two main seasons for edible caterpillars—one in the end of September–November, one in January–February. During the former there are great amounts of quite a few kinds of caterpillars to be found. During the latter a larger number of kinds occur, but there are generally not so many larvae of each kind. In the Kalundu region outbreaks are known during the major season, only. In Angola there are sometimes outbreaks also during the minor season. In the cold season (June–July), when the trees stand defoliated, only two kinds of edible caterpillars, hibernating in their cocoons before pupating, are available. As a rule people find none at all in August – the middle of September. Also in December, between the major and the minor season, and in March–May there are few edible caterpillars. People know well that the supply of caterpillars as a whole as well as the supply of each specific kind fluctuates greatly from year to year. Much sunshine together with early and heavy rains give good prerequisites for a good caterpillar season. If the weather is cold and the rains are poor, there will be relatively few larvae. Furthermore a caterpillar will, people say, disappear or be very rare the years after an outbreak. As a matter of fact e.g. the larva of Sphingomorpha chlorea, Noctuidae, which is said to occur only certain years, is present every year, but in so small numbers that it is overlooked.

In the same way the larva of Cinabra hyberbius, Attacidae, about which people report that it is to be found only in abandoned cultivations, occurs also in forest trees, but is not discovered there.

The villagers remember great caterpillar outbreaks as well as extremely poor seasons about ten years back.

Birds and ants are known as the worst enemies of caterpillars. Forest fires during the dry season destroy, people say, cocoons of Anaphe infracta, Notodontidae, and larvae of Nephele comma, Sphingidae. Sometimes caterpillars get sick (i.e. parasitized).

Furthermore, people know about each kind of edible caterpillar if it lives single, in small, or in large groups, if it feeds by day or by night, if it is of a quiet or of a restless nature, if it is easily frightened or fearless, what its droppings look like.

Gathering of caterpillars

In dense, high forest the presence of the caterpillars is mostly established by discovery of their droppings on the ground under the trees. The caterpillars can as a rule not be distinguished by eye-sight, while they are feeding in the crowns. In open habitats they may possibly be seen directly, if they are not protectively coloured. From low trees, shrubs, grass, and herbs the larvae are easily picked by hand. It is more complicated to get hold of those staying in a high tree. Some kinds of caterpillars are known to moult collectively on the trunk once, twice, or three times, and may be gathered then. Most kinds of edible caterpillars come, when they are ready to pupate, down to the ground in order to bury themselves in the soil, and may be gathered then. There is also the possibility, of course, to fell the tree.

It is easier to find caterpillars in the major season than in the minor. In October–November the grass has not yet grown high. The soil is more or less bare. Droppings of caterpillars are readily discovered on the ground. In January–February the droppings are more difficult to see, as the ground is covered with high grass. Furthermore, the grass makes it much more troublesome to stroll in the forest. Also the inundated dambos and the swelling watercourses impede the mobility. On the whole people concentrate more on caterpillars in abandoned cultivations and in forest edges than on those living in the crowns of high trees.

In the major season people often set out especially in order to gather caterpillars. Excursions from regions, where only few larvae are to be found, to more

well-furnished regions are common. The surplus of the catches is preserved. In the minor season the gathering is more unspecialized. People look for caterpillars, mushrooms, wild leaves, fruits at the same time. As they are more generally on the outlook for things to collect, they readily find also small groups of caterpillars living on or in the neighbourhood of different kinds of useful plants.

Men only rarely gather edible caterpillars in abandoned cultivations or else in the neighbourhood of the village. They do not look for small groups of larvae, but if they find some few, they will perhaps collect them and bring them home to the children. Generally the men concentrate upon large groups of caterpillars in the forest at some distance away, out of reach for women and children.

Women have a smaller radius of action and concentrate on looking for caterpillars in abandoned cultivations, in forest edges, and in the dambo. Of course they with pleasure collect large groups, but they will mostly take care also of solitary specimens. They are more systematic than the men, and many women scrupulously check e.g. the abandoned cultivations around the village every day during the caterpillar seasons, in order to know if the different edible kinds have yet appeared or are still there. Thus the women are as a rule first to discover that a certain caterpillar has reached edible size.

Children mainly gather edible caterpillars in the abandoned cultivations. They are often on the outlook for a snack--for some caterpillars, fruits, or grasshoppers etc. On the whole they are unsystematic, find only more conspicuous larvae, and overlook e.g. ones that are protectively coloured.

Thus men on one hand and women and children on the other do not compete for the caterpillars. The division of work has spread the activity of gathering over a vast area around the village.

A few caterpillars are traditionally reserved for women and children. They occur in small numbers or are small in size, and are only found in the minor season. The easily masticated pupae and caterpillars with soft skins are often reserved for the old.

Quite naturally people look more eagerly for a caterpillar the more popular it is. Non-feeding stages are preferred to feeding, smooth caterpillars to non-smooth. Caterpillars feeding on Julbernardia paniculata are known to have a better taste than others. A larva with several host-plants, among which J. paniculata is one, may, if it is found on some of the other hosts, be moved to a J. paniculata tree and left there for some time. Then it will be nicer, say the gourmets. The least appreciated caterpillar is kavambe (a Limacodidae species), but it, too, is more popular than e.g. fish. No kind of caterpillar can be regarded as famine food in the Kalundu region.

Cooking of caterpillars

According to kind and stage of development caterpillars demand different preparation methods. Spines and hairs are sometimes removed by burning, scraping, plucking. Caterpillars in feeding stages are mostly squeezed to remove excrements and half digested food. Larvae in non-feeding stages, pupae, and also small larvae that are difficult to handle are cooked directly. People do never eat the caterpillars raw, but boil or roast them. If one wants to boil them, one should cover them with water, put them on the fire, and wait till the water has evaporated. For certain kinds of caterpillars this process is repeated one or a couple of times. In some cases caterpillars are boiled in ash-water.

Caterpillars are either eaten as a snack—then they are mostly roasted—or as a meat-course, served together with porridge for the proper meals. Fresh larvae are preferred to preserved, and so people as a rule, when they have made a good catch, keep only what is left after a substantial meal for preservation. Only a few kinds of caterpillars are suitable, i.e. abundant, and well-tasting also as preserved, for keeping. In the Kalundu region only the larvae of Nephele comma and Cirina forda, occurring in October–November, are preserved. They should first be roasted or boiled, and then sun-dried for a couple of days or smoke-dried over the fire. The former method is more common. Preserved caterpillars are often stewed with vegetables. People in the Kalundu region estimate that caterpillars are eaten as relish to the main meal on an average once every 3rd or 4th day during the end of September–March (only once a week during January–March for the Nkoya), once or twice every fortnight April–June, no time August – beginning of September.

Trade

Caterpillars were one of the great trade articles of pre-colonial Africa. Local surplus was exported to regions deficient in caterpillars. Thus the Mbunda and allied peoples but not the Nkoya carried on trade with the larvae. The Nkoya say that there was no market for caterpillars in the Lozi kingdom. To become a trade article a caterpillar must be both abundant, suitable for preservation, and popular. The Mbunda know 7 kinds of caterpillars that are marketed—all of them feed on dominant species of forest trees. In Kalundu 3 of these kinds are available (Cirina forda, Imbrasia epimethea, and Nephele comma), two more occur elsewhere in the district. The increasing demand for caterpillars in the growing towns, and the attendant rising prices and cash payment, have di-

minished the occurrence of the regional bartering. In the local market at Mangango there are nowadays hardly any customers, because people do not want to pay money for caterpillars. Also in the District market at Kaoma there is little demand. But the villagers still use caterpillars as a medium of exchange in local bartering.

Neither in the Mangango nor in the Luampa regions people have specialized in gathering caterpillars for commercial purpose. Occasionally somebody may gather some bags and go away to the Copper-Belt towns in order to sell the larvae there.

The caterpillars are about 8 times as expensive in Lusaka and the Copper-Belt as at Mangango. In some areas to the north large-scale commercial exploitation of caterpillars occurs. Luvale and Cokwe tradesmen using lorries and chain saws travel around to outbreak places and gather large amounts of larvae.

Changes in modern time

About a century ago Africans offered early European travellers caterpillars with the thought that these delicious creatures should be highly appreciated. Neither explorers, missionaries, administrators, nor other European settlers did, however, regard the larvae as edible. As a rule they looked upon caterpillar-eating with horror, and did little to conceal their feelings of disgust from the Africans. Thus many villagers came to believe that real christians do not eat caterpillars, or that it was forbidden to eat them during the colonial time. Even if most people continued to collect and eat caterpillars as before, they did not invite Europeans to the meals any more. Persons who came in closer touch with the Europeans, e.g. the boarded pupils at the few mission-schools, who were later to become primary school teachers, public servants, etc., often adopted an attitude of aversion towards the larvae, saying that they are food for villagers and labourers.

In connection with the independence movement a reaction spread, especially in the towns, maintaining that caterpillars are excellent African food. The course of development, according to which modern, enlightened people should not eat the larvae, appears, however, to be stronger. Already at the primary schools many children learn from their teachers that caterpillars are bad food. Even if they generally keep the food habits of their parents, they have become a little hesitant about them. The pupils of the secondary schools, who spend their terms at boarding-schools with mainly non-African teachers, often refuse to eat

caterpillars, as do also many persons, who have worked as servants with Europeans. Sometimes it is said that as the caterpillar develops into a lovely butterfly, one should not eat it. Such a point of view is certainly derived from European and not from Mbunda or Nkoya tradition, which instead describes the butterfly as an abominable creature feeding on urine and excrements.

The Lozi as well as the Europeans despise caterpillar-eating, and have exerted some influence upon Mbunda and Nkoya attitudes towards the larvae. Thus people do not willingly admit that they eat caterpillars, when Lozi persons are present. In some cases where Mbunda or Nkoya persons have ceased eating caterpillars part of the cause seems to be very close contacts with Lozi culture together with loss of contact with the own culture. Yet, although the Nkoya have been incorporated with the Lozi kingdom since many generations, they still generally eat caterpillars, well knowing that the Lozi say that caterpillar-eaters are similar to monkeys.

During my stay in Western Province I neither met nor heard of any single Lozi person, who had started to eat caterpillars. Analogously there are very few Nkoya persons— on the whole only some women who have married immigrants—, who start to eat kinds of caterpillars, which are inedible according to Nkoya tradition. There exist powerful social and psychological barriers against even tasting food, that is traditionally rejected. On the other hand, when a person gives up eating a certain kind of caterpillar or caterpillars on the whole, people will perhaps be astonished, they will perhaps think that he is getting conceited, but his changed habits will generally be accepted without much fuss.

The modern changes in settlement pattern, in economy, in agricultural practice, and for the rest in manner of living are co-operating with the Lozi and European influence upon the caterpillar-eating of the Mbunda and Nkoya. More and more people move from the small forest villages, surrounded by forest, dambo, cultivations, and abandoned cultivations, with little competition for the caterpillars, to densely populated areas, where the villages are surrounded almost only by other villages and cultivations, the forest being distant and the abandoned cultivation being recultivated very soon, and where there is sharp competition for caterpillars as well as for other produce of gathering. More and more young people spend the time, which they formerly would have devoted to learning about nature, e.g. about caterpillars and hosts of caterpillars, or to collecting e.g. caterpillars, in going to school, in earning money at some more or less occasional work, in hanging about, in drinking beer, etc.

Thus the knowledge of flora and fauna diminishes, the surveillance of the caterpillar habitats becomes less scrupulous, and gathering of caterpillars be-

comes a much more time-consuming work. Rare, sparse, and little conspicuous caterpillars are often quite overlooked, and villagers may believe that they do not exist in the region, when they in fact occur in fair numbers. People who think about a larva that it is not to be found within reach will not look for it, and will perhaps forget about its appearance and habits. They will teach their children very little or nothing about it. If they come upon it, they will perhaps not recognize it. Often it is said that the caterpillars are getting fewer. It seems probable that this is true at least of some kinds, which are much sought for and easy to detect and collect. In other instances the case is perhaps rather that there are many more persons who compete for existing larvae, or that people do not look as carefully for them nowadays as formerly. Also a kind of caterpillar which traditionally is gathered only or mostly in the abandoned cultivations, will appear to be very rare in a region, where the soil is recultivated without the traditional rest, even though it actually is still common in the forest. The disappearance of the abandoned cultivations with their coppice does furthermore make it more troublesome to establish the beginning of the seasons of the different kinds of caterpillars. Nowadays it often happens that people notice a kind of caterpillar first when it is ready to pupate.

The general shortage of meat and also of caterpillars has resulted in a tendency to keep gathered caterpillars for the nuclear family, instead of sharing them with the other inhabitants of the village as well. Find spots are to a greater extent kept secret. People say that it happens that thieves take caterpillars, which are in the traditional way marked as private property. Furthermore, there is a tendency to eat not fully grown caterpillars, which would formerly have been kept until they had reached a larger size.

Among possible causes for decrease in the supply of caterpillars the concentration and increase of pupulation, forest-fires, and cutting down of trees may be mentioned. In order to counteract such factors different steps could be taken. Forest-fires, at least after the cold season, i.e. from the end of July to October, could be forbidden. Minimum sizes for the different kinds of caterpillars could be introduced. A tradition to spare some caterpillars of every discovered group, bearing the reproduction in mind, could be created. Further measures can be devised, when the biology of the species in question and the effects of human predation become better known. However, all such arrangements are in vain, if the children are not educated about edible caterpillars in their environment. In proportion to the great economic importance of the caterpillars the authorities have hitherto been little interested in them.

A natural thing would be to investigate if domestication of caterpillars is

possible. There is a traditional tendency among villagers to domesticate certain caterpillars. To breed edible caterpillars is probably not more troublesome than to breed many other kinds of domestic animals. In China the larva of the silkworm moth has been domesticated since long.

Some of the edible caterpillars live on plants which are cultivated. In the literature one can find the advice to treat such caterpillars with insecticides. It should be investigated if it is not possible to use the caterpillars in question as food, without running the risk of losing the exchange of the plants.

Inedible caterpillars

People know relatively little about inedible caterpillars. They are familiar with the fact that some kinds of caterpillars have hairs that are urticant. Only a few such larvae are, however, named and recognized. For the rest people suppose, without testing the hypothesis, that any hairy, unknown caterpillar they come upon has burning hairs.

The many kinds of larvae that feed on maize, millet, sorghum, pumpkin, etc. are regarded as being of one or two kinds. Some people believe that they turn into earwigs, when they grow up. On the whole they are considered to be little harmful. Nobody has ever gone hungry on account of their activities, say the villagers. The Nkangala collect and eat some of these caterpillars living on maize. According to the other peoples in the Kalundu region one should pick and kill them, if they are too many. Most of my informants have never found any reason for controlling them. The traditional cultivation methods do not favour heavy attacks.

Larvae of Choerocampinae, Sphingidae, with eye-spots are all considered to be of one kind. According to the Mbunda they predict death and are very bad creatures. According to the Nkoya they predict either death or food. The bagworm, too, is regarded as dangerous. It has attracted much attention owing to its peculiar way of life. It is connected with female initiation. If a person tramples upon a bagworm, a snake will strike him. If an animal swallows a bagworm, it will be suffocated. The mucebu larva, which is only known by the Nkoya, is a sign of coming food. The eye-spot larva, the bagworm, and the mucebu larva were formerly, and are still to some extent, used as ingredients in medicines for hunting, for receiving luck, etc.

Elsewhere in Bantu-speaking Africa people believe that the spirit of a dead person dwells for some time in a caterpillar.

Butterflies

The villagers show much less interest in the butterfly fauna than in the caterpillar fauna. When caterpillars are brought up for discussion, people may say that there are as many kinds of butterflies as of caterpillars. Otherwise only two or three kinds are distinguished. The most well-known lepidopterous insects are the grain moth and the diurnal butterflies. The grain moth is regarded as a harmful creature against which the seed is protected. The butterfly is despised for its filthy feeding habits. Furthermore, it is considered to be mad. It moves just as a mad or drunken person, people explain.

Abbreviations

in the current text

C	Cokwe	MB	Missions Bénédictines
Col.	Coleoptera	MCJ	Missionários da Comphania de Jesus
Dipt.	Diptera	N	Nkoya
Hym.	Hymenoptera	Ng	Ngangela
L	Lucazi	S.	Southern
Luv	Luvale	sp.	species
M	Mbunda	Y	Yauma

in the list of literature

AHKI	Abhandlungen des Hamburgischen Kolonialinstituts, Hamburg
AMRCB	Annales du Musée Royal du Congo Belge, Sciences de l'Homme, Linguistique, Tervuren
CME	Collections de Monographies Ethnographiques, Bruxelles
JIU	Junta de Investigações do Ultramar, Lisboa
JRAI	Journal of the (Royal) Anthropological Institute, London
ME	Monographies Ethnographiques
MIRCB	Mémoires de l'Institut Royal Colonial Belge, Section des Sciences Morales et Politiques, Bruxelles
MRAC	Musée Royal de l'Afrique Centrale, Annales, Sciences Humaines, Tervuren
NADA	Southern Rhodesia Native Affairs Department Annual, Salisbury
RLP	Rhodes-Livingstone Papers, Manchester
SEU	Studia Ethnographica Upsaliensia, Uppsala

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